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Carcinology in The Natural History Museum, London; the brachyuran crab collections and their curation from 1813–1904 (Leach to Calman)

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CONTENTS

Introduction . . . 161
The Early Years: Shaw to Leach, (1806–1822) . . . 163
The Mid-Years: Samouelle to White (1822–1863) . . . 165
The Later Years: A. G. Butler to W. T. Calman (1863–1904) . . . 173
Registers and Indexes . . . 184
Concluding Remarks . . . 186
Endnotes . . . 186
Acknowledgements . . . 198
References . . . 198
Appendix . . . 208

ABSTRACT. The nucleus of zoological research collections in the Natural History Museum, London, was formed during the ninteenth and early part of this century. This study appraises the crustacean collections containing brachyuran crabs acquired during the period between 1813 and 1904, when the crustaceans were under the care of various successive staff members, commencing with William Elford Leach and terminating with William Thomas Calman. During that period the collections were enriched from many sources. In particular, via Admiralty vessels, by professional and amateur naturalists and through exchanges with other institutions. The extant brachyuran crab material of the historically important *Leach* and *Montagu* Collections is listed. Circumstances relating to the acquisition of other major collections of the period are discussed and brief accounts given of the various curators associated with these collections.

INTRODUCTION

Curators of natural history collections are often called upon to provide details of material in their care. These request may be for information about circumstances in which a particular collection was acquired, the routes of exploring vessels and /or the sampling methods employed, or perhaps biographical profiles of collectors or naturalists that accompanied expeditions. Overall knowledge of these aspects is usually accumulated gradually over the years and often through requests from visitors or correspondents. Curators rarely find the time to publish compiled information of this type for either parts or of whole collections in their charge.

Yet such reviews can be of considerable value. Not only as a means of passing knowledge to successors, but can reveal insights into circumstances affecting the growth and care of collections, particularly when these may have been influenced by prevailing political or economic policies, museum conditions or the quality of past curators.

This present contribution traces the growth of the collections in the Natural History Museum, London, containing brachyuran crabs and from the time that the crustaceans were in the care of William Elford Leach (1790–1836), through his successors, until the arrival of William Thomas Calman (1871–1952). During this period of almost one hundred years, curatorial methods were established and some of the most important collections acquired, the study of which established the foundations of much of our present day crab taxonomy.

Throughout this period the crustacean collections were enriched from many sources. As will be shown the earliest and most important were the donations by William Elford Leach of much of his personal collection. Later, from the mid-nineteenth century onwards, the Museum acquired considerable collections from the Admiralty made by personnel serving on the many vessels engaged in surveying temperate and tropical waters. Valuable collections were also obtained through exchanges with other institutions or museums and by purchases or donations from amateur naturalists often serving abroad in a civilian or military capacity.

General aspects of the natural history collections of the British Museum and the later British Museum (Natural History) have been documented by Miller (1973), Günther (1975) and Stearn (1981). The development of the zoological collections was summarised in *The History of the Collections* . . . (see British Museum, 1906; Gunther, 1911, 1912). These works provide an excellent starting point for enquiries or research into curatorial history, but their broad coverage imposed restrictions on the amount of information given about specific collections and the individuals responsible for their curation. By comparison, this present contribution is confined essentially to an historical review of only the crab material contained in the present Crustacea Collection of The Natural History Museum although much of this information will apply to the other collections in the Zoology Department. The early history of the crustacean collections is briefly reviewed and circumstances that affected the working practices of two contrasting curators, George Samouelle (?–1846) and later, Edward John Miers (1851–1930) are related in some detail. As far as is practical historical aspects are dealt with chronologically and many events not directly concerned with the main narrative are relegated to *Endnotes*.

The following abbreviations are used: BM=British Museum; BMNH=British Museum (Natural History); NHM=Natural History Museum, London, (in October 1989 the British Museum (Natural History) was given a new corporate identity with the name *The Natural History Museum*); B.M.P=British Museum Papers (archival-British Museum); *Entom. Mem.*=Entomological Memoranda (1821–1840 in 3 vols: contains *inter alia* George Samouelle's reports to the Trustees etc) and in the Entomology Library Archives. Quotation are also given from: the Trustees Minutes, Letters and Reports, Official Documents, Keeper's Correspondence, the letters of E. J. Miers and the Report Book of J. C. Children. All are in The Natural History Museum Archives.

> ... They had their times, and we can say, they were ... Ben Jonson. 1631. *The New Inne, Act II, sc.5* (Edition Thomas Harper for Thomas Alchorne. London)

THE EARLY YEARS: SHAW TO LEACH, (1806–1822)

Dr. Shaw's cremations

When an act of Parliament received Royal Assent on 7 June 1753 for the establishment of the British Museum and thus acquired for the Nation the extensive collections of Sir Hans Sloane, among the numerous contents was listed 'Crustacea, or Crabs, etc., 363' (Stearn, 1981: 14). By 1806, when George Shaw (1751–1813) became Keeper of the Department of Natural History and Modern Curiosities of the British Museum at Montagu House, much of the zoological material of Sloane's collection was in an advanced stage of decomposition. This deterioration undoubtedly began during the period when James Empson (?–1765) who, until his death in 1765, had diligently curated Sloane's collections. Thus Shaw inherited a problem that was to harass his successors throughout that century and into the next, and specimens of this nucleus natural history collection that had been reduced to a valueless condition were therefore, destroyed. Sanction for this was required from the Trustees and their *Minutes* clearly reveal their concern. In 1808, for example, they directed:

> That Sir Joseph Banks be requested to consider Dr. Shaw's Report, respecting the Articles on the Basement Story, as read this day and to give such directions as may appear to him proper relating to any of the articles suggested by Dr.Shaw as fit for destruction, or to be disposed of; and that no articles be removed without the approbation of Sir Joseph Banks ... [*Trustees Minutes*, 9 July 1808: NHM Archives].

That permission was not always sought or obtained is clear from the directives issued by the Trustees from time to time reminding Keepers that approval for such disposals was necessary (Gunther, 1975: 60), but no doubt they must have been aware that Shaw was finding it necessary to get rid of unsuitable specimens on a regular basis.

In 1808 Shaw was instructed to reorganise the collections and to select items of interest for display in the central saloon of Montagu House. The remainder of the natural history collection was consigned to basement rooms. The long gallery over the King's Library and rooms in the North Wing, above the Department of Printed Books, were allotted to these display specimens. In 1809, in Gallery room X, there was exhibited:

> ... crustaceous animals; the West-Indian Land Crab; lobsters; various spider-crabs; soldier-crabs ... a fine specimen of a large land crab (*Cancer latro* ...) (British Museum, 1835: 41, 43)

The only spirit preserved specimens on display appear to have been quadrupeds. The majority, if not all, were probably Sloane specimens. In a footnote on page iii of the earlier 1809 *Synopsis of the contents of the British Museum*, the Sloane crustaceans were purported to have been represented by 1436 specimens, a figure greatly in excess of that given in 1753! Because additional storage space was required by the Library in 1809, anatomical specimens and duplicates (that no doubt included crustaceans) then occupying one of the basement rooms, were sold to the Royal College of Surgeons of England; they were offered back to the Museum forty years later (Gunther, 1975: 51).

In 1813 William Elford Leach (**1**) was appointed to assist Charles Konig (1774–1851) who had succeeded Shaw as Keeper of the Department during the same year. Described by Swainson (1840: 239) as of 'slight form, and delicate habit'. Leach nevertheless, possessed the abundance of energy and brilliance that was required for the unenviable task of reorganising the natural history collection on a more scientific basis. This he appeared to do with great determination while at the same time developing particular interests in arthropods and molluscs. However, some years later Konig, in giving evidence to the *Select Committee on the British Museum* stated that he found it necessary to re-arrange:

> . . . the British birds, for instance, and did away with Dr. Leach's names, which were complained of as new-fangled. He had his own terminology and nomenclature, and great complaints were excited by his introducing that instead of the old nomenclature which I superadded to to his own . . . (British Museum, 1835*a*: 186)

Unfortunately Leach was not to supervise the moving of these collections into the new British Museum that was being built just to the north of Montagu House and completed in 1830. Similar to his predecessor, Leach also had found it necessary to dispose of valueless specimens as indicated by his occasional requests to the Trustees:

> That Dr Leach be permitted to destroy the soft Corallines mentioned in his Report . . . [*Trustees Minutes*, 11 March 1815: NHM Archives]

This progressive disposal of specimens throughout the first two decades of the nineteenth century and later has, with one exception (see p. 220) effectively removed any evidence of Sloane crustaceans from the collections. Although some of the Sloane specimens were preserved '*in spiritu vini* in bottles' (Kalm, 1892: 97), it is likely that all the crustaceans were stored in a dry state and, similar to the insect collections, were vulnerable to the ravages of beetle and moth larvae (Dermestidae and Tinaeidae). Thus, in his statements to the *Select Committee* and in answer to the question:

> . . . Is the entomological collection, which was left by Sir Hans Sloane, in a perfect state at present . . .

Charles Konig found it necessary to answer:

> There is hardly anything remaining of it.

And to the question:

> . . . How does it happen that the collection has been lost . . .

Konig replied:

> . . . When I came to the Museum most of those objects were in an advanced state of decomposition, and they were buried and committed to the flames one after another; Dr Shaw had a burning every year; he called them his cremations . . .

And to the question:

> . . . Is there one single insect remaining of the 5,394, which were presented by Sir Hans Sloane? . . .

Konig replied:

> . . . I should think not.

Konig also remarked:

> . . . that some persons in the neighbourhood complained, and threatened with an action, because they thought the moths were introduced into their houses by the cremations in the Museum garden . . . (British Museum, 1835*a*: 197)

Also, the practice of 'camphoring' arthropod collections, that afforded some protection against infestations, does not seem to have been introduced into the Museum until about 1820. By comparison, of other invertebrate groups, shell collections have survived much better. Over 400 Sloane specimens were rediscovered by Wilkins (1953) among the BMNH shell collections. It is perhaps not suprising therefore, that in 1847 when Adam White published his catalogue of the entire crustacean collection he was able to list only one species of brachyuran crab from the Sloane collection (see p. 220).

The nucleus of the collection

The origins of the present Crustacea Collection therefore, can be said to date from the time when the British Museum acquired the personal collections of William Elford Leach and those resulting from his communications with other naturalists. The specimens cited in his classic *Malacostraca Podophthalmata Britanniae* (**2**) were probably the donation reported at the Trustees Meeting of 12 November 1814 (**3**). Leach's descriptive accounts of specimens in his personal or the British Museum collections are also contained in three other important publications by him: (i) the Crustaceology part of Brewster's *The Edinburgh Encyclopedia* (1814), (ii) *The Zoological Miscellany* (1814*a*, 1815*a*, 1817*a*), published in parts (**4** & **5**), and (iii) the supplement to the fourth to sixth Editions of *The Encyclopedia Britannica* (1816).

J. E. Gray (1880–1875), Keeper of the Zoological Branch of the Department of Natural History and Modern Curiosities, had no doubts about the importance of Leach's contributions to the Museum's collections. He remarked, in the Introduction to White's *List of the Crustacea ... in ... the British Museum*:

> ... The specimens collected by my friend and predecessor Dr. W. E. Leach, may be considered as the nucleus of this collection, and great attention has been paid to the published and manuscript names which he had attached to the specimens then in the collection ... (White, 1847).

The single Sloane specimen, the 'Leach Collection' and the specimens purchased from Leach's colleague Col. George Montagu (**6**), the undocumented specimens attributed to the 'Banks' Collection (see pp. 208–210, 214) and the few crustaceans of the Thomas Pennant (**8**) collection, the latter acquired by the Museum almost a century later, represent the oldest malacostracan specimens in The Natural History Museum Collections. The extant brachyurans of these four historically important collections are listed in the Appendix.

THE MID-YEARS: SAMOUELLE TO WHITE (1822–1863)

The Insect Room

Leach retired prematurely in 1822 and John George Children (1777–1852) was transferred from his post as Librarian in the Department of Antiquities to fill the vacated position of Assistant Keeper in the Department of Natural History. In matters relating to the arthropod collections he was assisted by George Samouelle (**9**) who had been appointed in 1821 as clerk and assistant to the Department of Natural History and Modern Curiosities headed by Konig. During the following decade much of the natural history collections would be transferred into the new British Museum. In 1829 the zoological specimens destined for display were moved into the upper gallery of the recently completed East Wing and the remaining specimens relocated in the northern part of the building as these rooms were successively completed. The move was a lengthy one and still in progress as late as 1842 (Miller, 1973: 232). But by 1840, the year that J. E. Gray was appointed Keeper of the Zoological Branch (so designated in 1838) of the Department of Natural History, all the arthropod collections appear to have been transferred from Montagu House and the majority into one of the rooms allotted to the Department. This was referred to as the 'Insect Room' situated adjacent to the Keeper's office in a semi-basement. Much later Sclater (1877) gave a derisory account of the prevailing conditions:

> ... The remaining naturalists are herded together in one apartment commonly called the insect room, along with artists messengers and servants. Into this room is shown everybody who has business in the zoological department of the British Museum whether he comes as a student to examine the collections, or as a tradesman to settle an account ...

The bulk of the arthropod collections were therefore, not on display in the galleries but visitors were informed that:

> ... The principal collection of Crustacea, Spiders and Insects, are preserved in proper cabinets in a separate room, and may be seen by persons who wish to consult them for the purpose of study, by application to the officer to whom their care is entrusted, every Tuesday and Thursday ... (British Museum, 1835: 31)

The Reports by Samouelle

The 1830s to 1840s were years of transition for the arthropod collections. A considerable amount of rearrangement and redocumentation of specimens appears to have been done concurrent with their relocation and it may have been about this period when many of Leach's original labels were replaced to update the nomenclature of collections (British Museum, 1835*a*: 279). That these tasks fell to Samouelle is evident from the reports that he was required to regularly submit to Children (and later to J. E. Gray) on his progress and which would have formed a part of the Keeper's monthly reports to the Trustees. Draft copies of many of these, in Samouelle's handwriting, are preserved in two of three bound volumes of Entomological Memoranda (for 1822–1840 and 1821–1840) contained in the Entomology Library Archives [cited below as *Entom. Mem.* **2** or **3**]; they provide an instructive insight into work carried out on the collections between 1830 and 1840.

Only two of these reports contain information about the state of the collections prior to 1830. In the earliest, dated 6 March 1829, Samouelle stated that the crustaceans and insects occupied 14 cabinets of 40 drawers each, and in an undated draft report (but probably written in 1835) the 'State of the Collections of Crustacea, Arachnoidea and Insects' is reviewed from March 1821 until July 1835. In 1821 there was a total of 11 cabinets housing these arthropods but this number had increased to 21 by 1835 and in that year the British crustaceans were contained in one, and the exotic in two, cabinets. It would appear that up to March 1821 none of the crustaceans had been catalogued, but 297 species had received catalogue numbers by July 1835. [*Entom. Mem.* **3**: 219, 224].

These crustaceans comprised much of the Leach collection and White's 1847 *Catalogue of Crustacea* gives names of donors from whom Leach obtained specimens.

In 1830 Samouelle reported that the crustaceans comprised '34 Drawers of British Crustacea arranged & named ... and ... 80 Drawers of Exotic Crustacea arranged and named'. He mentioned that throughout that year he had named, catalogued and incorporated into the 'general collection' some 244 specimens of crustaceans. Between 1833 and 1834 he needed to rearrange the collections more extensively, presumably to accommodate the specimens that were still arriving from Montagu House. By June 1833 this rearrangement had been completed for 31 drawers of British crustaceans. In his report for that month he informed Children that the:

> . . . Exotic crustacea [had been] arranged and named but not completed as the drawers are made of cedar . . . [*Entom. Mem.* **2**: 29]

The unsuitability of this wood for specimens cabinets was due to its propensity for extruding resin and he again drew Children's attention to this problem in July 1834 by remarking:

> . . . Cabinet 1. British Crustacea and arachnids in a cedar cabinet to be removed as soon as possible . . . [loc. cit. p. 47].

In referring to the cabinets containing the *exotic* species he stated:

> . . . These two cabinets are also of cedar wood. The contents to be removed to better cabinets . . . [loc. cit. p. 47].

Thus Samouelle was committed to rearranging the crustaceans into cabinets that he considered as unsuitable and which ultimately would have had a detrimental effect on the specimens.

In 1836 the Trustees required a census of the:

> . . . number of specimens and species, distinguishing those which are set up, arranged and exhibited, from those in the store chests, which the Museum possesses in the several branches of Zoology under your care . . . [Memorandum from Museum Secretary to Children, bound with *Entom. Mem.* **2**].

The return made on 14 April by Samouelle listed, for the crustaceans: British: 1007 specimens representing 179 species and all contained in cabinet *A*. Exotic: 1137 specimens representing 422 species and held in cabinets *E* and *F*. At least an additional seven unnamed specimens were stored in cabinet *X*.[*Entom. Mem.* **2**: 80–101]. There was no mention of spirit preserved specimens.

Being in working order

It was about this time that the Trustees were expressing their dissatisfaction with accounts of the duties submitted by the Attendants in Children's Department, and particularly of Samouelle. That animosity had developed between Sir Henry Ellis (Principal Librarian) and Samouelle is apparent from the verbatim evidence given to the *Select Committee* When Samouelle had been asked:

> . . . Have you the entire control of the entomological collection?

He replied:

> . . . I cannot say that I have, because I have been told that I am a mere nothing in the Museum . . . I have been told by Sir Henry Ellis that I am no officer of the Museum;

> that I am a mere nothing there. I want it to be defined whether I am an extra assistant, a keeper of the insects, or what . . . (British Museum, 1835*a*: 270).

On 5 April 1837 Children needed to ask Samouelle to elaborate upon the phrase 'being in working order' that not infrequently occurred in his reports when referring to the state of certain collections. A reply was required by 'the Attendant who brings this' [*Letters and Reports* 1828–1840: NHM Archives]. On 7 April Sir Henry Ellis, wrote to Children:

> The Gentlemen (at least some of those) who report to you are by no means sufficiently specific as to the Duties which they actually peform in your Department . . . [loc. cit].

After citing a sentence from Samouelle's report as an example he continued:

> . . . Where did these gentlemen begin-when did they end, in their labours during the last month . . . [loc. cit.]

Children communicated this matter to his staff on the same day:

> Mr. Children requests the serious attention of the Gentlemen attached to his Department (especially *Mr E. Gray* and *Mr. Samouelle*, as they are more particulary referred to) to the accompanying letter which he as this morning received from the Principal Librarian, from which they will perceive that their Reports must in future specify *the actual* amount of *Duty performed* from *Month to Month* . . . [loc. cit].

That Children found it necessary to defend his own frustrated position as well as those of his Assistants is apparent from the comments that he wrote in April 1837:

> Mr. Children . . . has made such arrangements for conducting the business of his *branch* . . . He has been anxious to establish a systematic division of labour, so that each assistant may steadily pursue a certain object, without interfering with the other and particulary to place the duties of the person employed in arranging and naming the Entomological Collections on such a footing, that he shall not . . . be liable to those continual interruptions, which sacrificing the public interest to the unreasonable accomodation of a few private individuals, has hitherto sorely impeded the advancement of those collections to that state, short of which they are comparatively useless. For this purpose Mr. Children has directed Mr. Samouelle not to admit visitors to the Entomological Collections except on the two days sanctioned by the Trustees . . .
> [*Report Book of J. C. Children*. 12 December 1835 to 13 July 1837].

Sixteen years more

Young Adam White, (**10**) who had been appointed to the Department in December 1835 and who was working chiefly on the bird collections was now about to assume a significant rôle in the curation of the arthropods:

> Mr. Children has directed Mr. White to attend in Mr. Samouelle's room every Tuesday and Thursday in order to get out Drawers for the Visitors, to camphor, where [?when] necessary and to give Mr. Samouelle such other assistance, on these days as he may be able to [?appoint] him. To enable Mr. White to render him this service Mr. Children has directed Mr. Samouelle to make Mr. White perfectly acquainted with the contents of the several cabinets, that he may at once know where to find any insect which the Visitors may ask for . . . [loc. cit.]

Children also found it necessary to confess that the state of the Entomological collections were such that:

> . . . *no one order* is fully arranged and named . . . [and that] . . . This is the state of the Entomological Collections, after Mr. Samouelle has been engaged on them for sixteen years and if the system hitherto pursued were to be still persevered in, it would not be much better in sixteen years more . . . [loc. cit.].

An admission that required drastic measures for changes that were not to occur for many years.

In February 1838 Samouelle reported that from 11 January until February he had been:

> . . . engaged on the Exotic Crustacea. Mr. S. has found it necessary to review and go through them agreeble to the arrangements of Dr. Edwards he has also incorporated those of the Hardwicke Bequest as far as he has proceeded but cannot at present ennumerate the number of duplicates as he is anxious to be correct in this respect. Mr. S. begs to state that there are a great many duplicate specimens [of] British Crustacea, that Dr. Leach always considered as his private property, as they were his own collecting, & independent of the British Collection of Crustacea. With respect to the Duplicates of the Exotic species there are but few if any for no collections has been received of any extent with the exception of Gen. Hardwicke . . . [*Entom. Mem.* **3**: 123].

It is clear that Samouelle was using volumes I and II of the recently published Milne Edwards' *Histoire Naturelle des Crustacés* (Milne Edwards, 1834, 1837) and which Samouelle's successor, Adam White, was also to use extensively for arranging the crustacean collections. The copies of these volumes in the Crustacea Sectional Library are extensively annotated by White. This report also reveals that, although the Hardwicke collection (**11**) of insects and crustaceans had been received by the Museum between 9 and 11 April 1835 and 'all the insects put into Mr. Childrens Room' [*Entom. Mem.* **3**: 123], it was not until 1838 that Samouelle could find the time to incorporate this collection. Also his reference to Leach's private duplicates of British crustaceans is of some importance, these specimens had been allowed to deteriorate to a state that eventually necessitated their disposal (see p. 172). In February 1838 Samouelle's performance was severly criticised by Children [see letter in Endnote (**9**)].

On 8 March 1838 Samouelle stated that he:

> . . . has continued the study and arrangement of the collection of Crustacea, to the present time they consist of about 111 Genera, 244 species and 513 specimens and occupy 51 Drawers . . . [*Entom. Mem.* **3**: 124].

The figures must refer to specimens he had rearranged. In April 1838 he was still curating the *exotic* crustaceans and by then had:

> . . . completed 24 Drawers since his last report; he has gone through the examination of the Collection of the Hardwicke Bequest, selected & incorporated with the General Collection 107 specimens, and there remain of Duplicates 2 Drawers . . . [loc. cit. p. 125].

On 24 April he replied to an enquiry or criticism about certain collections in his care. Unfortunately no copy has been found of the memorandum addressed to him by Children that provoked the following answer:

> . . . Agreeble to your direction the following is the particulars of the boxes & Cabinets in the Insect Room independent of the 26 cabinets containing the General Collection of 40 drawers each. Box No 2 [?or 1] from Latreille directed to yourself to the best of my knowledge I never saw until it was pointed out to me yesterday morning, or it certainly would not have been neglected and which I am sorry for. The greater portion of the Boxes belongs to Dr. Leach and contains nothing but duplicates and which Dr Leach always considered as his own private collection which he collected & reserved to give to his friends or for exchange they were duly camphored for a number of years but owing to the insecurity of the boxes it was utterly out of my power to preserve them . . . [loc. cit. p. 126].

If some of these boxes contained the Leach duplicates of British crustaceans mentioned above then apparently they were disposed of a few years later by Gray or White when they reviewed the collections (see below). Samouelle was again in trouble in May and August of 1839 for failing to provide suitable reports and in January 1840 was severly reprimanded for 'attending to students to name their insects' [*Letters and Reports*, 1828–1840] The Trustees explicitly forbade such practice and informed Children:

> . . . no person shall henceforth be allowed to bring specimens of Insects for the purpose of naming them . . . [*Trustees Minutes* 18 January 1840].

Devoting time and space to shadows

Samouelle's reports often contained requests for additional cabinets. It is evident that these were required to replace the cedarwood ones found to be unsuitable and that were causing deterioration of the specimens contained in them. However, this demand was, in part, related to the methods by which he was arranging the collections, leaving spaces in the drawers into which he could incorporate species not yet acquired, their intended positions denoted only by an appropriate label. Children strongly disapproved of this practice as it only served to emphasise the deficiencies of the collections in his charge. He stated rather eloquently that Samouelle was:

> . . . devoting time and space to *shadows*, which might be better employed on *realities*, for the species which want naming are neglected, whilst names which want the corresponding species are ostentatiously exhibited in the drawer 'more in mock than mark'—miserable momentos of the poverty of many parts of the collection—and Mr. Samouelle at the same time complains of the want of cabinets to receive actual specimens! Mr. Children recommends that no more cabinets be ordered, till the present ones are *properly filled* . . . [*Report Book of J. G. Children*].

In April 1840 Samouelle apparently found it necessary to attempt two drafts of his monthly report on the collections. Both are preserved in the *Entom. Mem*. volumes, one in Vol. 2 and the other in Vol. 3. The contents of both are almost identical but their titles differ. One version reads:

> A Report of Entomological Cabinets Boxes etc in the care of Mr. Samouelle by the *Desire* of Mr. John Ed. Gray. 4 April 1840.

In the other copy the words from 'care of Mr. Samouelle' to the end of the sentence have been deleted and 'Insect Room' inserted. In these Reports the crustaceans are described as being in:

> Cabinet A British Crustacea, Arachnoidea and Myriopoda arranged *named* and labelled by *Mr Samouelle* . . . and . . . Cabinet E.F. Exotic Crustacea named labelled and arranged by *Mr. Samouelle* . . .

The underlining* of certain words is significant. Adam White, the other arthropod curator, was now proving to be a particularly industrious worker. J. E. Gray, who had recently succeeded Children as Keeper of the Zoological Branch, was now to question the veracity of some of Samouelle's statements and was dissatisfied with the contents of this Report. He undertook his own investigation of the state of the entomological collections and a draft of his account, bound into *Entom. Mem.* **3**, is revealing. On 15 April 1840 he wrote:

> Having received the accompanying report from Mr. Samouelle which I did not consider as satisfactory as it did not contain scarcely any of the information requested by my note and some statement which I know to be erroneous as for example the remark who had arranged the Cabinet. I directed Mr Adam White to go through the collection with me and give his oppinion [sic] on such draws & Box [sic] as we examined them. The following remarks are the result of our joint examination.

The Report is a lengthy one. Summaries and quotations relevant to the crustaceans are given as follows. Cabinet A, consisting of 40 drawers, contained the British crustaceans and arachnids. Nineteen of these housed the brachyuran crabs, eight the macrurans and there was one drawer of amphipods and one of miscellaneous crustaceans. Gray remarked:

> . . . some of the drawers are bad, the grooves breaking into the camphor cells . . .

He also noted that the specimens had been:

> . . . arranged and named by Dr. Leach . . . the labels rewritten by Mr. Samouelle . . . Many of the drawers only half filled, some of the specimens nearly destroyed by gum . . .

Cabinets E and F contained foreign crustaceans. Cabinet E accommodated 'Brachiura' and miscellaneous crustaceans. Cabinet F held:

> . . . 11 Brachura [sic] . 16 Macrura. 1 Stomatopoda. 1. Lamotopoda 1 Cymothoa 1 Various species . . .

Gray noted that the glazing was broken and that the specimens had been:

> . . . arranged and named by Dr. Leach. Mr. Samouelle has since altered the arrangement (since Mr. Bell Evidence ?). so as to agree with Mr. Milne Edwards Books leaving spaces for the Genera, some of the drawers have only one or two small specimens in them.
> The Miscellaneous drawer is as left by Dr. Leach

Cabinet V of 40 drawers had contained some crustaceans from North America which apparently had been removed, and also British crustaceans of which Gray salvaged those worth keeping. In another cabinet, labelled 2B, he removed one drawer containing crustaceans and relocated this in the Exotic Collection. He also had one drawer of crustaceans from the Hardwicke mahogany cases removed and relocated into an unspecified crustacean cabinet and noted that there was:

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* underlined words in all letters quoted are printed in italics

> . . . A Cabinet with 14 Glazed Draws in 2 series.(G) . . . Duplicate Crustacea Principally from the Hardwicke Bequest.

He also listed the locations and conditions of various other crustacean collections. A deal cupboard contained the:

> . . . upper shelve filled with Crustacea from South America. Presented by Lord Frances Stewart, much worm eaten only covered with paper.

The several boxes containing Leach's duplicate British crustaceans, mentioned by Samouelle in his Report of 24 April 1838, were described thus by Gray:

> . . . These Boxes which were, what Dr. Leach kept his duplicate and unarranged specimens in have been so neglected since his time that in all many and in more than half all the specimens have been entirely destroyed by Vermine leaving only the dust and the skeleton of the specimens on the Pins. I have directed that the few specimens that can be of any use should be selected and shall recommend that the rest of them and the dust be burned. They will not make a great fire!

The Report concludes with mention of other boxes or trays of crustaceans or their pieces, some 'mostly destroyed' others:

> . . . fragments . . . entirely spoiled with dust. A Tray of crustacean from Broderips Collection, covered with dust from having been put under one of the Cabinets as they were sent to Mr. Samouelle after they had been registered!

Poor Samouelle was finally dismissed in 1841 leaving the curation of the arthropod collections in the hands of the highly competent and singularly industrious Adam White. The crustaceans were to receive a fillip in 1847 by his publication of the first, (and still the only) inventory of the entire British Museum crustacean collection.

Progressive enrichment

The frustrations that J. E. Gray inherited on his accession to Keepership in 1840 were partly ameliorated during these mid-years by the progressive enrichment of the Collections through personnel serving on Admiralty vessels. The earliest important Admiralty collection acquired and containing crustaceans had been from the ill-fated H.M.S *Congo* (**12**) River Zaire expedition of 1816 that Leach had supported and for which he had obtained Trustees permission to supply glassware etc [*Trustees Minutes*, 13 January, 1816]; he also reported on some of the specimens collected (Leach, 1817–1818). Some twenty years later four collections were received in close succession. The increase of donations from this source (**13**) may have been stimulated by recommendations arising from the *Report of the Select Committee*. During this enquiry Konig had been asked if he was:

> . . . aware that there is a regulation in the naval service, which requires officers on their return home to surrender such specimens as they may have collected abroad? . . . and that did he . . . not think it would be expedient that such a regulation should be so far altered as to enable the Trustees of the British Museum to select valuable specimens of what by regulation is considered public property? . . . (British Museum, 1835*a*: 202).

The Trustees were apparently concerned that the British Museum, rather than the Museum of the Zoological Society of London, should be the proper repository of such collections.

These four collections, all containing brachyuran crabs, were from H.M.S. *Erebus* and *Terror* (**15**) Antarctic Expedition of 1839–43 but not reported upon until 1874 and by Miers, although White had apparently planned to described at least part of this collection (see **16**). Then followed those made by: H.M.S. *Fly* (**17**) during the south western Pacific survey of 1841–1846 (see White, 1847*a*); by H.M.S. *Samarang* (**18**) off the coasts of China, Japan, Korea and Borneo between 1843 and 1846, the specimens collected were described by Adams & White in 1848 (but see (**19**)); by H.M.S. *Rattlesnake* (**20**) during the south-western Pacific survey of 1846–1850, but not reported upon until much later and by Miers (1884). The last to be received was from H.M.S. *Herald* (**21**) commissioned to survey the North and South American Pacific regions. Again, these specimens were not reported upon until several years later and also by Miers in a series of papers (Miers, 1878, 1879, 1880, 1881, 1882, 1884).

Two other collections were acquired during these mid-years. Of significant value for number and diversity of species were the decapods collected from Indo-Pacific localities by Major General Hardwicke (**11**). These had been received on 9 April 1835 and contained in fourteen drawers of one of the several cabinets of his insects. They were eventually incorporated into the general collection by Samouelle. Now considered of some historical importance are the specimens from the Rijksmuseum van Natuurlijke Histoire, Leiden, received in two consignements in 1844 and 1845, and referred to by White (1847) as the *Leyden Collection* (**22**). These comprise syntypic material collected by von Siebold and Heinrich Burger when in Japan and were reported upon by de Haan (1833–1850).

A catalogue of Crustacea

Although, in 1847, Adam White had produced a commendable catalogue of the Crustacea collection, it was Gray's ambition to have his catalogues periodically updated. His already hard-pressed staff were fully occupied with the curation and identification of incoming specimens with barely any time to devote to revisionary tasks of this kind. As there was little likelihood of staff numbers being increased, Gray had to resort to commissioning paid outside help for this work. For the crustaceans Thomas Bell (**23**) was employed to produce a catalogue of the leucosid crabs, a group on which he had specialised. This catalogue was published in 1855 (Bell, 1855) and was 'planned to be the first part of a catalogue of Crustacea' [Bell, in British Museum, 1906: 732]. As an inventory of specimens it is of limited use. The work comprises mainly of systematic diagnoses of leucosid crabs and only general localites are given. 'BM' is suffixed against the entries for British Museim specimens; those in Bell's private collection and in other places are also listed. This *Catalogue* appeared in the same year as Bell's more detailed systematic treatise on the Leucosiidae (Bell, 1855*a*) that was mentioned by Gray in his Preface to the *Catalogue*. A reappraisal of Leucosid types designated by Bell was made by DiMauro (1982).

THE LATER YEARS: A. G. BUTLER TO W. T. CALMAN (1863–1904)

The Spirit Room

In 1856 the various Branches had been upgraded to Departments and by this time the Zoology Department's specimens on display were distributed in the galleries of the greater part of the East Wing upper floor. The Keeper (J. E. Gray) and Assistant Keeper (his brother G. R. Gray) occupied a semi-basement room in the North Western part of the building adjacent to the 'Insect Room' (fig. 1, A). By then the numbers of specimens preserved in alcohol had increased and the bulk of these were stored in the so-called *Spirit Room* in the East Wing basement. The conditions in which these bottles were kept left much to be desired:

> . . . There was no ventilation. To secure a draught through doors and windows meant drawing coal and other dust from the passage adjoining. So the stagnant air either deposited its moisture, or held it in suspension, according to the humidity of the atmosphere. The flagstones were continually saturated from springs that in former years had supplied the residents of Bloomsbury with excellent water. This rotted the bottoms of cases, and caused the labels on the bottles to drop off. The temperature was kept at 60 to 65 degrees by hot-water pipes. On account of the spirit, lights were not allowed and when the days drew in work had to be suspended . . . (Gunther, 1975: 264).

Gray was very concerned about the state of these collections. Between 1854 and 1868 he had them transferred from the basement into galleries attached to walls above the exhibition cases in the East Wing. He had also tackled the problem of label deterioration:

> . . . The mode of writing the name on a white disc, painted on the bottles, introduced some years ago has been found a complete remedy for the evil that arose from the paper labels becoming obliterated and detached . . . (British Museum, 1867: 48).

Of the remaining vertebrate material still stored in the basement in 1867 he remarked:

> . . . the great variation of temperature, and occasional heat of the locality, occasion rapid evaporation and deterioration of the preserving liquor, [(**24**)] accelerating decay. Registered specimens, when so far dissolved and decomposed as to lose character, are removed . . . (British Museum, 1868: 30).

The Banks specimens

Adam White apparently set himself the task of cataloguing every arthropod in the Museum's collections. This onerous work and his willingness to assist anybody with enquiries concerning the collections or other matters no doubt contributed to the 'mental indisposition' that forced him to retire in 1863. A. G. Butler (**25**) who was appointed to this now vacant post in 1863 was to be:

> . . . employed upon the entomological collections temporarily; he had to take up also Crustaceans, Myriopoda and Arachnida (Günther, 1912: 17)

This suggests that these latter groups were more or less obligatory and therefore would receive less attention than the insects. Butler eventually became an authority on Lepidoptera but his interest in Fabrician specimens led him to incorporate the crustaceans and insects of the Banks Collections (**26**) received from the Linnean Society of London in 1863 (Günther, 1912: 23). It is not known if Butler was responsible for attaching the small labels printed with the words 'Banks Coll.' to the dry specimens or whether this was done much later when the Dry Crustacean Collections were again reorganised between 1898 and 1902 (see p. 182). At least 40 of these labelled specimens have been located among the dried crustacean material. The majority bear just the small printed label, but a few are mounted on cards (**27**). None of these specimens have information that discloses their history. Brachyuran crab species bearing these 'Banks Coll.' labels are listed in the Appendix.

To acquaint himself with the collections of Crustacea

Butler remained in charge of the crustaceans until the appointment of Edward John Miers in 1872. Miers was:

> . . . directed to acquaint himself with the collections of Crustacea and to act as amanuensis to Dr. Gray . . . (Günther, 1912: 22).

J. E. Gray had been recently partially paralysed after a stroke, knew the Miers family and sponsored his application for a Junior Assistantship at the Museum, stating:

> . . . I can recommend him from personal experience as he has lately written letters and scientific papers for me from direction. I have known him from his birth, he is the Grandson of Mr. Miers FRS the celebrated botanist . . . [Gray to Winter Jones, 24 February 1871: NHM Archives].

A knowledge of foreign languages was then an important attribute and Miers had indicated in his application, dated 29 February 1871, that he could:

> . . . read, write and speak Frence, read Greek and Latin with some knowledge of German . . . [British Museum, Bloomsbury, paper no. 2869: copy in NHM Archives].

He also modestly stated that he had some practice in drawing, but a testimonial letter from his tutor on this subject, Henry I. Tollit, was more affirmative:

> . . . He has a natural taste for Drawing and Shading and much perseverance—He was one of my most successful pupils . . . [15 March 1871, from The Parks, Oxford, Miers letters: copy in NHM Archives].

It was fortunate that Miers was permitted to confine his studies exclusively to the crustaceans but regrettable that he was to remain in office for only thirteen years. The quantity and quality of his systematic work was remarkable, particularly as he received almost no help with the increasing problems of curating a collection that was growing rapidly during the particularly unsettled period of his employment. Miers established some 32 new genera and subgenera and described at least 260 new species and subspecies of decapods (Gordon, 1978: 124). Some of these were of specimens previously incorporated into the Museum's collections, but others were received during his time, culminating in the rich collection of brachyuran crabs from H.M.S. *Challenger* (**28**).

Prostrated by illness

In February 1875 Albert Günther succeeded J. E. Gray as Keeper. In 1876 the construction of the new Museum at South Kensington had reached an advanced stage, but it was not until June 1880 that the building could be officially handed over to the Trustees by H.M. Commissioners of Works. Only then could the transfer commence of the collections from Bloomsbury. Although this began in the early summer of 1880, the zoological galleries were not completed until 1882 and the moving of the zoological specimens could not commence before July of that year. Meanwhile at Bloomsbury, as early as 1878, the first major disruption was to occur. The studies occupied by the Zoological Department were now required for a new antiquities gallery and it was necessary for the staff, their effects, and much of the collections to be relocated in the recently vacated geological galleries. This move must have severly hindered the normal work of the Department and Miers would, no doubt, have been involved, along with the other staff (**30**) in the various tasks associated with this transfer of the Department as well as with the initial preparatory work needed for eventually moving the collections to South Kensington in 1882. Although faced with these problems Miers nevertheless, produced some 29 papers during these five years some of which he illustrated himself. A number of these were substantial contributions, such as the *Stalk-and Sessile-eyed Crustacea of New Zealand* and also major revisions of certain groups-the Plagusiinae, Hippidae, Majidae, Squillidae and Idoteidae (see Miers 1878, 1878*a*, 1879, 1879*a*, 1880, 1881). Of the Admiralty donated collections, Miers reported upon those obtained by: Capt. St. John's Japanese coast Survey (**31**) of 1870–1877 in H.M.S. *Sylvia*; the *Transit of Venus* Expedition (**32**) of 1874–5 to Kerguelen and Rodriguez Islands; by H.M.S. *Peterel* (**33**) from the Galapagos Islands; by H.M.S. *Isbjorn* (**34**) to Novaya Zeemlya in 1879; by Baron Hermann Maltzan (**35**) from Goree Island during 1881 and the substantial collections of H.M.S *Alert* (**36**) from the Magellan Straits and Patagonia during 1881–1882. All were donated during his tenure (see also p. 181). Such application and industry must have contributed to his apparent state of collapse disclosed to an unspecified correspondent (but probably Paul Mayer):

> . . . I much regret not having been able to answer your letter before; but I have been completely prostrated by illness during the last three months, and am even now unable to do more than attend to a few matters that absolutely require immediate attention after which I am going away for further rest . . . [7 October 1800, Miers letters: NHM Archives].

In 1882 Miers must have felt sufficiently recovered to accept his largest taxonomic undertaking, the report on the brachyuran crabs collected during the voyage of H.M.S. *Challenger*. In June 1882 John Murray wrote:

> . . . I have send you to-day addressed to the British Museum 6 boxes containing Brachyura . . . My wish is that you would make a careful preliminary examination of the collection now sent to you, and then send to me at your convenience as correct an estimate as you can form. of the number of plates you will require for illustrating your Memoir, and the number of pages (Quarto) to which your memoir will probably extend . . . [23 June 1882; Miers letters: NHM Archives].

Miers replied that:

> . . . it will be necessary for me to postpone the preliminary examination of the 'Challenger' *Brachyura* for a short time in order to complete a report upon another collection now in process of determination . . . [7 July 1882, Miers letters: NHM Archives].

This was the *Alert* report.

Single-handed & without assistance

It was not until 1883 that Miers seems to have been able to continue with the preliminary sorting of the *Challenger* specimens. In April he returned to Murray a box of larval brachyurans and commented:

> ... Certainly they could hardly be included in my report upon the adult *Brachyura*, since the limited time at my disposal and my other duties would prevent close anatomical study of their affinities. [2 April 1883, Miers letters: NHM Archives].

The time had now arrived for the first of the arthropod collections to be moved to South Kensington. Miers was informed, but found it necessary to ask Günther to allow him to delay moving the crustaceans. This letter is quoted here in full since it gives a glimpse into the many problems that beset Miers at that period:

> ... As I understand from Mr. Waterhouse it is your wish that I should begin at once to pack up the spirit collections of Crustacea for transference to the New Museum I venture to take this opportunity of asking you either:
>
> (1) that the removal of the *whole* collection be effected at once or (2) that it may be delayed until the completion of my preliminary examination (at least) of the 'Challenger' Brachyura, which has been necessarily delayed by the preparation of the reports of the Crustacea collected by H.M.S 'Alert' & Co.
>
> The examination of the 'Challenger' collection, which is of very large extent, shews that before I can furnish Mr. Murray with the statement he urgently requires as to the probable length of the report & number of plates needed to illustrate it, I must determine for myself the true limits of the group, about which at present the greatest uncertainty exists, and must acertain from Dr. Jules Barrois of Villefranche, who is charged with the description of the *Anomura*, which of the debatable minor groups & genera he proposes to retain for his own report (there are, I think, in any case, a certain number of genera which have been sent to me as *Brachyura* which must be sent to him); to determine these points I have continually to refer to the types in the Museum Collection. I may add, that if I am to complete the report within the specified time (which I am told by Mr. Murray cannot possibly be exceeded), I must give myself more unreservedly to the work, which would be greatly facilitated if I could have (as hitherto) the dried-and spirit-collections, near together, so that not only the types in the Museum Collections would be available for study, but also the determination of the species in the Museum & of the accessions could be carried on with as little waste of time to the Trustees as possible. I would remind you that up to this time the registration, labelling & incorporation of almost all the specimens has been effected by me single-handed & without assistance. I would respectfully suggest to you that, if the collections under the charge of Mr. Ridley & Mr. Bell are transferred *before* the Crustacea, it would give me a few weeks additional time & the space required for separating the species in the 'Challenger' collection, during which time I might possibly be able to furnish Mr. Murray with the information for which he presses me. Doubtless, it will not be possible to have in the New Museum the Collections of Crustacea as conveniently placed for reference as in the rooms we at present occupy, on which account, only, do I regret having to leave them ... [14 May 1883, Miers letters: NHM Archives].

Miers wrote the above letter from his home in Upper Tooting. It is not known whether he was on vacation or still unwell. Günther made concessions and during May Miers was able to inform Murray:

> . . . I have completed the first or preliminary examination of the Brachyura and have put aside twenty bottles and tubes containing Dromiidae, Paguridae, Lithodidae, Porcellanidae, Galatheidae, *Remipes*, together with an unopened tin case marked 'K.V' sent as containing *Birgus latro*, which I can forward if you think fit, direct to Dr. Jules Barrois at Villefranche. I am as yet quite unable to say to what length my report will extend, but as far as can be judged from a preliminary & very superficial examination, the proportion of new forms is not large & I daresay 10 or 15 plates would contain everything requiring illustrations; the number of species and genera is however so great & so many will require a close comparison with described types that I will not express myself very positively on this head.
> At the beginning of the week I received instructions to commence packing the whole of our Crustacea for removal to Kensington & was in fear, therefore, that the 'Challenger' work might be shelved for some weeks or even months, but I have obtained a respite of a few weeks during which I hope to make some further progress with it. We shall not, I fear, have our Collections so conveniently arranged for work in the new building for a long time to come . . . [17 May 1883, Miers letters: NHM Archives].

Barrois was unable to find sufficient time to work up the Anomura and returned the collection to Murray. This group and the dromiaceans was eventually reported upon by Henderson (**37**).

In September 1883 Miers received Murray's consent to incorporate into the Museum Collections the specimens to be retained. He also informed Murray on 17 September, that he intended, with permission, to figure:

> . . . not only the new species in the Collection (which are not very numerous) but also such forms as have never yet been illustrated and are insufficiently known . . . [17 September 1883, Miers letters: NHM Archives].

By January 1884 Miers had received proofs of the first and second plates that he sent to Murray for approval. In May 1884 he had to inform Murray that he had:

> . . . been unable to make but little progress with the 'Challenger' Brachyura latterly . . . [31 May 1884, Miers letters: NHM Archives].

Although most of the descriptive account apparently had been completed he still had . . . a good deal of preliminary work to do in regard to the classification of the genera and some of the families included in the Report. [Loc. cit.].

Murray replied by asking if he should approach Flower (then Director) or Günther to see if he (Miers) could be allowed more time to devote to the task. He also asked Miers to prepare an abstract of the proposed Report. Miers promised a short abstract by the end of June and retorted that:

> . . . The work which has somewhat delayed the report has been the regular work of the Dept which must of course always take precedence . . . [4 June 1884, Miers letters: NHM Archives].

In the retained draft of this letter sent to Murray the last sentence is deleted but reads:

> . . . Prof. Flower & Dr. Gunther have always shewn me the greatest indulgence and allowed me the fullest liberty consistent with my duty to the Museum. [Loc. cit].

In July he sent to Murray the requested Abstract and also enclosed further proofs of some plates. He also asked permission to publish this Abstract in the *Annals and*

Magazine of Natural History 'in order to secure priority for names of the new species' [5 July 1884, Miers letters: NHM Archives]. Murray, however, was not prepared to publish this submitted Abstract if it was also to appear in the *Annals* and suggested that Miers should publish diagnoses of the new species. Miers withdrew his original request, but in a postscript to a further letter stated that he may consider publishing these diagnoses 'if time and opportunity allow' [14 July 1884, Miers letters: NHM Archives].

During August he was again absent from the Museum but correcting his proofs from an address in Filey, Yorkshire. He informed James Monteith at the *Challenger* Expedition offices that:

> . . . Should I (as is possible) be in Edinburgh for a day or two at the beginning of next week, I will bring the paper with me as I could make these little additions as well there (no doubt) as in London . . . [15 August 1884, Miers letters: NHM Archives].

In October he received proofs from C.Spence Bate (**38**) of that author's Introduction to the Report of the *Challenger* Macrura. Presumably Bate had hoped that Miers might adopt the somewhat precious nomenclature that Bate, in part, had originated for the descriptive taxonomy of the species. Miers, however, tactfully declined stating that:

> . . . I fear I am already too far advanced with the descriptions of the Brachyura for it to be possible for me to adopt your system, and as moreover, my Report will be a very simple descriptive account of the genera & species & as the simpler nomenclature is used by Prof. A.Milne-Edwards & most other systematists, I think I cannot do better than adhere on the whole to my ordinary method of description . . . [4 October 1883, Miers letters: NHM Archives].

The best systematic authority

Following some slight misunderstanding about the quality of the proofs accompanying the Abstract and which he needed to amend, Miers was able to inform Murray on 8 October 1884, that all the preliminary sketches had been prepared of species to be illustrated in the Report and that these would comprise 28 plates. He also wanted to send copies of the Abstract to fellow taxonomists but Murray preferred that he published diagnoses of the new species rather than distribute copies of 'an unpublished account like the abstract' [10 October 1884, Miers letters: NHM Archives]. Miers replied at some length:

> . . . Thank you for your letter. If you send me the copies of the abstract I will of course not send them to anyone likely to take unfair advantage of the information it contains, or if you prefer it I will not distribute them until the publication of your Volume (In the Narrative of the Voyage—see Tizard et al. 1885). Prof. A. Milne-Edwards sent to me and I believe to other workers (certainly to S. I. Smith) a large number of unpublished Plates of the new Brachyura Anomura Macrura & Schizopoda of the 'Blake' and Travailleur Expeditions which have been of great assistance to me in my work. By the way (since you once spoke to me on this matter) I should have thought that A. Milne Edwards ought to be asked to take some part in the Report on 'Challenger' Crustacea; that is, if he has not already been invited to do so. I suppose he is the best systematic authority on the higher Crustacea. I may mention that I took the liberty of submitting the cuts of new Challenger Crabs figured in the Abstract to him and he agrees with my ideas about their affinities.
>
> My objection to the publication of diagnoses is, that, although they would secure priority they would be of little use to other workers; besides, I do no scientific work

> outside of the Museum & could ill spare the time within official hours for the compilation of such a paper . . . [14 October 1884, Miers letters: NHM Archives].

But Milne Edwards apparently was not invited to contribute. An obvious choice as Miers intimated. Milne Edwards had been one of the leaders of the 'Commission' for the marine explorations carried out by the *Travailleur* and *Talisman* (**39**, **40**). However, as both Gwyn Jeffreys (**41**) and A. M. Norman (**42**) had freely given advice to the French on dredging matters associated with these expeditions but were not invited to participate in studying the collections, Murray (who no doubt, had known of this situation) may have used this request by Miers as an opportunity deliver a slight rebuff to the French academics.

Conscientious motives

In January 1885 Miers was again unwell but by March had returned to the Museum from where he acknowledged the honorarium of £63 for his contribution to the *Challenger* Reports. In April he was again absent and wrote to Günther from Upper Bangor in N. Wales:

> Although benefitted by my few days stay here, I regret to say I feel the effects of the severe shaking I had last week, more than I could have anticipated . . . [23 April 1885, Miers letters: NHM Archives].

He expressed his regret for this absence in view of how short-handed the Department was. Throughout July he was also unwell, and informed Günther: 'I am still unable to apply myself to anything' [12 July 1885, Miers letters: NHM Archives]. It must have been about this time that he considered resigning from his post at the Museum. During August Francis C. Miers wrote to Günther:

> . . . His proposed resignation was dictated from concientious [sic] motives he being under the conviction at the time that his health would not allow him to pursue his work and he considered it right to give notice to that effect. He is now, however, very much better & I believe that with care and a little more rest Edward will recover his usual health & be quite able to resume his duties . . . [16 August 1885, Miers letters: NHM Archives].

Nevertheless, Miers tended his resignation to Prof. Flower (the Director) on 30 October 1885 but he may have again returned to duty since he wrote to Günther in November that he was:

> . . . remaining at home this morning as I am not feeling quite well, and have some work which I can do at home, but I hope to come as usual to the Museum tomorrow . . . [23 November 1885, Miers letters: NHM Archives].

But it was not to be and the Trustees reluctantly released him from their employment. In May 1886 he wrote to Edgar A. Smith (see **30**) from an address in Beckenham, Kent:

> . . . Please to open all parcels & co addressed to me at the Museum and forward merely letters. I am a little better and trust that my successor will shortly be appointed. Thank Dr. Günther for his kind enquiries. Mr. Waterhouse has the key to my desk . . . [27 May 1886, Miers letters: NHM Archives].

A most excellent contribution

In June 1886 he was apparently well enough to edit part of his *Challenger* manuscript (sent to Murray in instalments between 1 April and 25 November 1886) and wrote to Murray from his home address in Tooting:

> . . . I find on looking over the MS. which remains of my Report on the Challenger Brachyura that it could hardly be printed off without such slight emendations as I can easily give to here, and I think that it will be best after all if I continue to correct the proofs myself my health having much improved.
> I now send you therefore by parcel post the part only of the MS containing the *Cycometopa* or *Cancroidea* which is ready to be printed off, and hope to return to you in a few days some of the proofs which I have here, corrected for press. I sincerely trust & hope there will be no further delay in the execution of the work to which I will if possible regularly give my evenings in the future. [24 November 1886, Miers letters: NHM Archives].

John Murray replied that he had received the manuscript and added that:

> . . . During the past few days I have been going rather carefully over your Report: it is excellent and very valuable and the manuscript you have now sent is so clear and well prepared that I do not think there will be much work in passing it through the press. I am sure the work will do you very great credit; in the eyes of all naturalists it will be regarded as a most excellent contribution to science.
> I hope your health will be such as to enable you to look over the proofs . . . [26 June 1886, Miers letters: NHM Archives].

His last letter concerning Departmental matters was written to Günther during August 1887 and in answer to an enquiry from R. I. Pocock who had been appointed as an Assistant in 1885:

> . . . A few of the Fabrician types of Crustacea, about which I have received a note from Mr. Pocock, are in the small cabinet placed on the top of larger cabinets in the room containing the Crustacea and Lepidoptera. These cabinets also contain a number of Crustacea belonging to the regular collection which requires rearrangement in the new cases provided for a year or two ago, which I will see to when I am able to return to my lodging at Wandsworth Common and to my work in the Museum . . . [30 August 1987, Miers letters: NHM Archives].

There is no evidence that Miers ever returned to deal with this matter and thus the Department was deprived of an outstanding carcinologist and a conscientious an able curator. He lived on in retirement to a respectable age of 79 years and died on 15 October 1930 at Burchett's Green, near Maidenhead, Berks.

Collections received between 1860 and 1885 (other than those mentioned as reported upon by Miers) containing significant brachyuran specimens were: those from the south western coast of America obtained during the survey by H.M.S. *Nassau* (**43**); from the Indian Museum, Calcutta (**44**); from the N. Pacific coast of America and determined by W. N. Lockington (**48**); from the Smithsonian Insitution, Washington (**50**); from the Arctic Expedition of H.M.S. *Valorous* (**53**); from the overseas collections of the International Fisheries Exhibition of 1883 (**54**); those made in Aden by Major Yerbury (**55**).

Shared responsibility

The premature retirement of Edward Miers in 1885 left the Museum's crustacean collections again virtually unstudied. They were immediately put under the care of Jeffrey Bell who later shared the task of their curation with Reginald Pocock. Francis Jeffrey Bell had been appointed in 1878 to take charge of the vermes and echinoderms. He also held the post of Professor of Comparative Anatomy at King's College, London, from 1879 until 1896. Bell's interest was chiefly echinoderms on which he regularly published. His crustacean research is represented by only one paper (Bell 1902) and he compiled the Crustacea Section of the *Zoological Record* in 1885 and 1886. It has been said of him that "such time as he could spare from the adornment of his person he devoted to neglecting the echinoderms" (Gunther, 1975: 406) and that he was most at home in furnishing reviews to the *Athenaeum* and abstracts to the *Journal of the Royal Microscopical Society* (Anon, 1924: 541). Nevertheless, Bell was responsible for incorporating a considerable number of crustaceans into the collection and the Accession Register contains many pages in his characteristic handwriting (fig. 1,f) listing specimens that he identified between 1894 and 1904. He also compiled a manuscript catalogue of brachyuran species (see p. 186). He retired from the Museum in 1919 and died in 1924.

Reginald Innes Pocock had been successful in a competitive examination for an Assistantship in the Museum and was appointed to the Zoological Department in 1885. Initially he worked for a year on the entomological collections but was then put in charge of arachnids and myriapods and shared the curation of the crustaceans with Jeffrey Bell. He resigned in 1904 to take up the post of Superintendent at the Zoological Gardens, London, from where he retired in 1923. He died in 1947.

If Pocock had been instructed to make the crustaceans his priority then undoubtably the Museum would have had an authority on this group equal or possibly surpassing the industriousness of Miers. Pocock's scientific output was truely prodigious. He published over 500 scientific papers. Fifteen of these were on crustaceans, the rest on arachnids, myriapods and mammals. He was promoted to a first class Assistant in 1895 and some idea of the administrative tasks that he added to his scientific ones can be gathered from the following remarks:

> . . . His official position at the Museum brought him into contact with men and women of various grades of society and of many nationalities. It also entailed the preparation of official reports and recommendations; and involved business relations with dealers, printers, artists, etc to settle prices of specimens, arrange work to be done and check bills; while periodical superintendence of carpenters, labourers and attendants gave him experience in the management of men in a subordinate position . . . (Hindle, 1948).

Although he officially retired in 1923 he still travelled from Bloomsbury to South Kensington and was working at the Museum the day before his death.

Thus both Bell and Pocock took their share at incorporating the ever increasing numbers of crustaceans being received. During 1886 Bell was registering specimens, but from the end of that year and until 1894 Pocock was responsible for the majority of entries. After 1894 Bell's handwriting again predominates until 1904 when it is succeeded by that of William Thomas Calman who by then had taken charge of the crustaceans. Between 1898 and 1902 the collections of dry and pinned crustaceans were apparently all transferred and rearranged into new cabinets, commencing with the oxyrhynchs (British Museum, 1899: 94; 1901: 112; 1902: 104; 1903: 117). This work was probably carried out by Bell and perhaps completed by Calman.

The ever growing collections

During the seventeen years that Bell and Pocock shared the curation of the crustaceans, many large collections were acquired. Those containing significant numbers of brachyuran crabs were: donations and purchases from Francis Day (**56**) from various Indian localities; those from the Atlantic and Mediterranean explorations of the French vessels *Travailleur* (**39**) and *Talisman* (**40**) acquired through exchanges with the Museum D'Histoire Naturelle, Paris; the collection from Christmas Island made during the visit of H.M.S. *Flying Fish* (**57**); from Mauritius purchased or donated by M. V. Robillard (**58**); from Fernando Noronha donated by the Royal Society of London (**59**); collections acquired from the Colonial Exhibition (**60**) of 1886; from Dominica presented by the West Indian Commission (**61**); from John Murray's *Medusa* expeditions (**62**) in the N. Atlantic; from Tizard and Macclesfield banks via H.M.S. *Rambler* (**65**) and those from Macclesfield and Holothuria Banks via H.M.S. *Penguin* (**66**) and H.M.S. *Egeria* (**67**); dromiids etc from the *Challenger* collection determined by Henderson (**37**); the collection received as an exchange with the Warsaw Museum (**68**); the large collection purchased from A. M. Norman (**42**) that included specimens from H.M.SS. *Porcupine* (**69**) and *Triton* (**64**); the collections made by Messrs Bedford and Lanchester (**70**) in Singapore and Malacca.

Does not promise to be so very tempting

The appointment of Calman to the Department's staff in 1903 as a temporary assistant was to provide a much needed stimulus to the curation of the crustacean collection lasting well into the present century. Calman's biographical details have been well documented (Cannon, 1953; Gordon, 1954). Calman's outstanding aptitude as a carcinologist was acquired in the Natural History Department of University College, Dundee and nurtured by Professor D'Arcy Wentworth Thompson who had built up an imposing teaching collection there, and it could be said that Calman was well on his way to making his most important contribution in carcinology before he joined the Museum's staff.

The quality and number of papers that Calman had produced while at Dundee had attracted the attention of Sir E. Ray Lankester, then Director of the British Museum (Natural History), who approached him to write the crustacean part for the Oxford *Treatise of Zoology* series that Lankester was editing. Pocock acted as Lankester's intermediary in negotiations with Calman about the *Treatise* crustacean volume and in one of his letters he suggested to Calman that he should 'come to London to take over our Crustacea' [30 October 1902: NHM Archives]. But as early as May 1901 Calman had expressed his view on this matter to D'Arcy Thompson 'Upon the whole, the B.M. offer (if it does come) does not promise to be so very tempting' [7 May 1901: copy in NHM Archives]. However, Calman may have eventually decided that the environs of a large museum with good library facilities and collections were better suited for the writing of his volume of the *Treatise* than the rather parochial surroundings of Dundee. The British Museum (Natural History), that was fast becoming 'the centre of zoological thought in the country' (Cannon, 1953: 361) was then able to provide both and may have greatly influenced his acceptance in 1903 of the temporary post in the Department where he continued with preparation of the volume. A year later, when Pocock resigned, he was appointed to take charge of the crustaceans and pycnogonids and, for a short while, the arachnids.

Changes

That Calman's appointment to the permanent staff 'as a First class Assistant, with charge of the Crustacea' [28 July 1919, Calman to University Court, St. Andrews University:

NHM Archives] had not been an easy one is evident from a lengthy letter written by him to D'Arcy Thompson in January 1904. As Cannon (1953) pointed out, the method by which his appointment was made secure may have precluded his chance of later becoming the Museum's Director. This appointment was by recommendation and not by the competitive examination that the Trustees would have preferred. Lankester nevertheless, was keen to fill the vacancy with an acknowledged expert because, as Calman had remarked to D'Arcy Thompson 'if they put in a young untrained man to work at Arachnids or Crustacea there is no one in the Museum who can teach him anything about his work' [25 January 1901: copy in NHM Archives). Calman had hoped that the suggestion of a permanent appointment could come from one of the Trustees rather than from Lankester himself (whose relationship with them was 'not of the sweetest' [Loc. cit.]) and he tactfully asked D'Arcy Thompson if this could be effected, remarking that Norman would be 'much concerned about what will happen to his collections when they come here and it would ease his mind somewhat perhaps if he knew that the Crustacea at least would be in charge of a man who would not dry them & stick them on pins' [Loc. cit.].

The Museum's crustaceans were more or less still classified on the system proposed by the French zoologist A. Milne Edwards. Calman's first task was to rearrange the collection according to the new system used in his volume of the *Treatise*. In this undertaking he was probably assisted in the routine work by the Attendant assigned to him, William Ernest Barnett (1886–1966) who gave devout service to Calman for many years. Calman's characteristic handwriting (fig. 1, H) appears first in the accession register in September 1904 and continues until 1918; there are a few entries by him in 1920 and 1924. From November 1904 until September 1937 an increasing number of entries also occur in Barnett's handwriting (fig. 1, I) and later in that of Isabella Gordon (1901–1988) who succeeded Calman as the officer in charge of the crustacean and pycnogonid collections (Holthuis & Ingle, 1989) and for whom Barnett worked until he was seconded for 'war service' during the second World War. Barnett did not return to the Crustacea Section and officially retired in December 1958, having served the Trustees for 54 years.

REGISTERS AND INDEXES

On 14 June 1838 Children reported to the Trustees:

> ... All new acquisitions, on their arrival, have a ticket, with a number, affixed to them, and a corresponding number is entered in a book, called the 'Inventory' with the locality of the specimen, name of the Donor, if present, time when received, etc- ... The Entomological catalogue which is contained in 15 larger 4th [=quarto] volumes, was began by the late Dr. Leach who seems to have registered about 3564 subjects and since he left the Museum in 1821, it has been continued by Mr. Samouelle ...
> [Letters and Reports, 1828–1840: NHM Archives]

None of the existing volumes of arthropod registers examined can be identified as begun by Leach. There is a bound quarto register, now in the Crustacea Section Library, containing crustacean entries numbered 1–533 and in Samouelle's handwriting (fig. 1, b) but the last entry (in White's handwriting) is number 539 after which this register was discontinued. This may be one of the volumes mentioned by Children as 'continued by Mr. Samouelle' but it has not been possible to establish the date when the register was commenced, it may have been discontinued at about the time of Samouelle's dismissal in 1841. A register of smaller dimensions, containing almost entirely crustacean entries, also in the same Library comprises three volumes with the spines inscribed *Catalogue of Crustacea*. These are numbered respectively 1–348, 349–694 and 695–1036. The original entries in the first and part of the second volume are in an unrecognised handwriting but after number 540 all are by Adam White who on most pages of the entire register has inserted lower case alphabetical letters to designate the number of specimens (see fig. 1, d). Entries 1–539 are copied from the other register mentioned above.

The date of origin of this smaller *Catalogue* is also uncertain. A note on the flyleaf by Isabella Gordon reads 'This catalogue is partly the work of G. Samouelle (?); he was employed from 1821–41 so that the thin writing as on p. 1. may be his or that of a clerk of his time. The supplementary entries and the later ones from 540 on are in Adam White's unmistakable round hand-c.f. White's signature in the General Library.' An inserted pencilled remark reads 'W. E. Leach's collection was acquired in 1826. Since this register begins with the entry of Leach's specimen of *Limulus* it is probable that it dates from 1826.' However, a careful comparison of the unrecognised handwriting in the first half of this Catalogue with that of Samouelle's suggest that none of these entries are by him. This Catalogue was probably initiated by Adam White and used as a basis for his List of the Crustacean in the British Museum (White, 1847). White apparently preferred to start a new register instead of continuing the one compiled by Samouelle. The unrecognised handwriting may be that of one of the seven Attendants employed by the Department at that time and who, under White's supervision, would have transcribed the entries from the other register and also incorporated the unregistered specimens.

Other early registration books for arthropods are contained in the Library of the Entomology Department and date from 1837–1849. One set bears the title *Register Entomology*. In these, from April 1837 until September 1841, each species (or lots of the same species) is numbered chronologically, commencing again with no. 1 at the beginning of each month. After September 1841 this was changed to numbering each collection followed by the number of specimens and beginning at number 1 for each new year; from 1849 the name of the month was sometimes inserted. In 1838 another register was also commenced, the-*Zoological Accessions Annulosa Register* and from 1838–1849 entries from the *Register Entomology* were copied into this and the same specimens were re-registered using the numerical citation of year, month and day; many of the early entries are in White's handwriting. From February onwards the year is often omitted when Samouelle has made the entry. From October 1841 the system then reverted to year, collection number, and number of specimens and is used in the register then started (in 1876) exclusively for the crustaceans and continued in this form until 1889 after which the numerical year, month, day and number of specimens is once again used.

The oldest extant index of crustaceans, now contained in the Zoology Department's archives, was commenced by Adam White. This is a systematic index comprising quarto sheets onto which generic, specific diagnoses, synonymies, and distributions of species are entered. These manuscript sheets are held between stiff white covers the spines of which are inscribed *1–85 Diptera* and *2440–2521 XXIX Coleoptera*. (These covers were obviously used for conveniently retaining the pages since their inscriptions bear no relationship to the contents). Although the majority of the entries are decapods, a few isopods are interspersed among these, suggesting that this may be the surviving part of a larger index. A few pages, in a handwriting that has not been identified, differ from the others in that they are entries of named specimens in the collection and an encircled registration number has been appended on the top left of each page. These species and numbers are the same as those in the *Catalogue of Crustacea* mentioned above.

Bell (British Museum, 1906: 732) stated that Miers had 'made notes for a catalogue of Brachyura'. If this was of the collections then none of it appears to have survived. However, in the Zoology Department's Library there are three bound volumes of crustacean figures, originally the property of J. E. Gray but with 'Edw. J. Miers' inscribed on the fly-leaf of each volume. Volume 1 is labelled *Podophthalmata, Brachyura* and is composed of 82 pages of cut and pasted illustrations from published works or of coloured tracings. Volume 2 is labelled *Podophthalma Anomura, Macrura, Stomatopoda etc* and comprises 77 pages. Some are brachyurans, a few appear to be original figures. Volume 3 titled *Edriophthalmata Entomostraca. Cirripedia, Pycnogonida and Xiphosura* contains 148 pages also with some original figures.

Finally, the 'complete MS. list of all the known species of Brachyura' that Bell (British Museum, 1906) stated he had compiled and 'constantly kept up to date' is also in the archival collection of the above mentioned Library. This catalogue comprises paper sheets measuring 25 × 15.5 cm (blue for genera, white for species) with typed or handwritten listings of systematic and bibliographic references of species, and also localities and donors of identified brachyurans in the Collections. Although the majority of the specimens entered had been previously registered their numbers are not included. Instead each sample is prefixed with a letter, commencing with 'a'. The upper right-hand corner of each species sheet bears a printed number that identifies a genus or species. These numbers are again entered against an alphabetical list of genera contained in a small notebook. Although there are a few entries in Calman's handwriting, this catalogue does not appear to have been maintained for accessions beyond about 1899 and no additional species are entered after 1910.

CONCLUDING REMARKS

During the previous century the state of the Museum's crustacean collection depended upon the ability, interests and attitudes of the individual curators who had charge of it. William Leach was the first to bring some scientific order to the natural history collections, but for the crustaceans much of this documentation was nullified by his successor John Children who rejected many of Leach's 'new fangled names' as inappropriate and presumably instructed his assistants, George Samouelle and later Adam White, to replace many of Leach's labels. There are now very few labels in the drawers of the dry crustacean collection that may be in Leach's handwriting. It is difficult to make a fair evaluation of Samouelle's contribution as a curator. Much of the available documentary evidence about his workpractice is denigratory and perhaps reflects, in part, the somewhat austere working conditions of his time. By comparison the industrious and conscientious Adam White was to leave the crustacean collections in a state of orderly documentation apparent by the neatly written specimen labels that have survived to this day and the numerous meticulous catalogue entries. Reginald Butler appears to have done very little to the collection as he was, no doubt, fully occupied with the insects. It was under Edward Miers that curation of and research on the Museum's crustacean collections attained a standard of excellence that was not equalled until William Calman took charge of the group some 20 years later. Fortunately he was to be the first of an unbroken line of curators who were allowed to devote their time exclusively to the care of this rich and important research reference collection.

ENDNOTES

(1) Leach, William Elford (1790–1863: Gilbert, 1977). In his early years Leach collected marine specimens in Devonshire, sometimes accompanied by his friend Charles Prideaux of Kingsbridge.

He graduated in medicine at St. Andrew's University at 22 years of age but was intent on a career in general zoology. In 1813 he obtained a post in the Department of Natural History ... at the British Museum (Montagu House). In 1820 or thereabouts he was unable to continue his normal lifestyle. His frequent indispositions led the Trustees to grant him, in 1821, successive periods of leave but his deteriorating health compelled him to resigned his post in 1822.

Leach remained in England for a while but, in the care of his sister Jane, eventually went abroad, living in various parts of southern France and finally Northern Italy where he died of cholera in 1836.

Leach's interest was establishing taxonomic groupings, chiefly of the crustaceans, molluscs and insects. On this and other matters he corresponded with Cuvier, Latreille and other french zoologists and appears to have visited the Museum National d'Histoire, Paris, during at least 1815, 1817 and 1821. The names that Leach used for many of his genera and species gave rise to debate and led the Committee of the British Association on the *Revision of Zoological and Botanical Nomenclature* (Strickland et al, 1843) to consider many of Leach's names as 'nonsense names'. However, Knight (1900) convincingly argued that many were derived from classical, biblical and oriental sources. An interesting aspect of Leach's pre-occupation with name derivation is the permutation of the name Caroline or Carolina. At least nine of the crustacean genera that he established in 1818 are anagrams of one or the other name. Smith (1980), suggested that it may have been that of Queen Caroline and that Leach created these anagrams as a sympathetic gesture after the death of her mother, Princess Charlotte in 1817.

(2) The first seventeen parts of this work, published between 1815 and 1820, were written by Leach and illustrated and published by James Sowerby. In the NHM copy the inscription on the wrapper of each part differs from the title page bound with the first part (1815). *Malacostraca Podophthalmata Britanniae* ... is followed (on the wrappers) by ... *or descriptions of the British Species of Crabs, Lobsters, Prawns and of other Malacostraca with Pedunculate Eyes* ... but on the title page is printed ... *or, descriptions of such British species of the Linnean Genus Cancer as have their eyes elevated on footstalks...*

It was the publishers intention to complete the whole work in about nineteen parts, but publication lapsed after Leach's premature retirement. The stock was acquired by Mr. Quaritch (publisher) and the work completed by George Brettingham Sowerby, the final part being issued in 1875.

(3) *Thanks were ordered to be returned for the following Presents ... To Dr Leach for the 9th & 10th numbers of the Zoological Miscellany ... To Dr Leach for a Collection of the larger Crustacea of Great Britain* ... [Trustees Minutes, 12 November 1814: NHM Archives].

(4) The *Zoological Miscellany* was a continuation of the earlier *Naturalist Miscellany* **(5)** and appeared in parts or numbers **(3)** between 1814 and 1817.

(5) The *Naturalist Miscellany* appeared in parts between 1790 and 1810 (Sherborn, 1895). This was the earliest catalogue originating from Montagu House. It appeared monthly and 187 parts were issued. It contained ... *coloured figures of Natural Objects and described immediately from nature* ... that were being acquired by the Museum. Twenty nine species of crustaceans are included in parts spanning the years 1793, 1797–99, 1801–6 and 1810. Only six of these species are brachyuran crabs. Vernacular names are given but details of donors and localities are omitted. The work was compiled by George Shaw and illustrated by R. P. Nodder. The latter artist provided illustrations for the later *Zoological Miscellany* **(4)**.

(6) Montagu, George (1753–1815: Cleevely, 1978). Montagu was usually referred to as 'Colonel Montagu' but this was a courtesy title as he was commissioned as a Lieutenant-Colonel (Wiltshire Regiment of Militia) and remained unpromoted. His interest in natural history seems to have began during his army service in N. America. He was compelled to resign his commission in 1799 after being court-martialled on matters relating to his association with Elizabeth Dorville. Afterwards, both parties became fully involved in natural history and Mrs Dorville illustrated many of his publications. They settled in Kingsbridge, Devon. Throughout his life Montagu collected assiduously and also employed 'his man Gibbs' **(7)** for this purpose.

The Trustees recommended that ... *Colonel Montagu's Collection of British Zoology be purchased under the circumstances mentioned in Dr. Leach' Report* ... [Trustees Minutes, 13 June 1916: NHM Archives]. Although this was the notable collection of British birds, specimens belonging to other groups were also represented. For example, Leach (1816a) acknowledged specimens of the mud shrimp *Axius stirynchus* from this collection … *lately purchased by the Trustees* … [Loc. cit.] and also frequently acknowledged the help of his friend Montagu who sent him specimens. His remarks on the *Galathea spinigera* figured by Sowerby in that work reads … *Our figure is coloured from the drawing most kindly sent to me by Mrs Dorville who drew it from a living specimen* … [Loc. cit.].

(7) Mr Gibbs (or Gibbes) was presumably a local Kingsbridge taxidermist and assisted Montagu with collecting specimens. He is referred to as the … *Colonel's man* … and … *the man who stuffed Colonel Montagu's birds*… (Elliot, 1897). His help was acknowledged by James Sowerby who named a fungus after him (Cleevely, 1978) and by Leach (1819: text to Tab. XIX) who used Gibb's name for a spider crab, remarking that the species (*Pisa gibbsii*) … *was first noticed by Mr Gibbs, employed by Montagu, and is named after that indefatigable and successful collector, by whom the British Fauna has been considerably enriched* …

(8) Pennant, Thomas (1726–1798). After his death and until 1912 Pennant's collection remained in his residence at Downing Hall, Holywell, Flintshire. In 1912 the collections were donated to the British Museum (Natural History) by the Earl of Denbigh, a relative of Pennant (Smith, 1913). Among this material … *Five crustacea, probably types of species described by Thomas Pennant in 1777; presented by the Earl of Denbigh, CVO* … are mentioned as being among these specimens (British Museum, 1913: 154). [See Appendix of this present paper].

In 1952 six additional specimens were received from Mr Guy Wilkins, then on the staff of the Mollusca Section, discovered while curating the collections. These are labelled-*Astacus fluviatilis. Astacus bamffius, Astacus bernhardus, Astacus norvegicus, Astacus strigosus, and ?Atelecyclus septemspinosus*. All are without addition documentation.

(9) Samouelle, George (?-1846: Gilbert, 1977). Samouelle was engaged on 16th March 1821 as a clerk and assistant to work on the entomological collections. He had been employed previously by the publishers, Longmans, and his popular book (Samouelle, 1819) must have counted in his favour when being considered for the post (Gunther, 1975: 55). After some years in office his efficiency was questioned and he was frequently repremanded for the inadequate reports he wrote concerning his work and also for irregularities in attendance. In February 1838 the Keeper, George Childrens, was provoked into admonishing him in no uncertain terms:

> *Sir,*
> *As head of the Zoological Department, and responsible for the due performance of the duties connected with it, I cannot any longer suffer the entomological branch to be neglected as it has lately been.*
> *If the state of your health be really such as to render you incapable of more active exertion, and to prevent your attending to your duty, as the other assistants in this department do, during the Museum hours from* 10 till 4-*and, as at the present moment, even to occasion your absence for whole days together—I shall feel it indispensable to report the fact to the Trustees, and shall suggest that it will be better, in future, to put you on the same footing as Mr George Gray (and for the same reason) and proportion your pay to the time of your actual attendance, at a certain rate per diem. I shall also urge the necessity of another assistant being appointed to the same branch of the department, as the only means by which the arrangment and naming of the collections can be effected.*
> *I am very sorry to be obliged to come to this decision but I have no alternative-Your note of Tuesday, announcing that you were unwell, only reached me late in the evening of that day-and I should have known nothing of the cause of your absence till than time, had I not previously sent a messenger to enquire into it; and in the interim persons were waiting to consult the entomological cabinets in momentary expectation of your arrival.*
> *Yesterday you continued absent without assigning any futher reason, and today the same-things cannot go on thus, and it is my duty, as is my determination, to take care that they shall not* … [22 February 1838. Letters and Reports: NHM Archives].

Samouelle was suspended from employment in 1838 but re-engaged at a lower salary. He was again suspended for futher misdemeneanours in 1839 and dismissed in 1841. He died in 1846.

(10) Adam White (1817–1879: Gilbert, 1977). White came to London from his home town of Edinburgh at the age of 18 years and with a letter of introduction to Gray. He was appointed to the Zoological Branch of the Department of Natural History of the British Museum in December 1835 and remembered by many for … *his readiness to assist, and the broad Scotch accent with which his words of sound advice were delivered* … (Dunning, 1879).

White seems to have set himself the task of cataloguing every arthropod in the collection and overwork may well have been the cause of his retirement through 'mental indisposition' in 1863.

He apparently recovered temporarily but then suffered several relapses. Even as an inmate of one Scottish asylum he edited and contributed to the house journal (McLachlan, 1879).

White's most important contributions to carcinology were: *List of the specimens of Crustacea in the Collections of the British Museum* (White, 1847) and *A popular History of British Crustacea* (White, 1875). He seems to have been the first to apply the suffix **-idae** to designate insect families.

(11) Major General Thomas Hardwicke (1756–1835: Swainson, 1840: 208; Dawson, 1946). Hardwicke served with the East India Company for 45 years. As a devotee to natural history he amassed a large collection of coloured drawings made by native artists. These, along with his manuscripts and specimens, form the 'Hardwicke Bequest' acquired by the British Museum (Natural History). A greater part of the crustacean material is extant and incorporated in the Dry collection.

(12) H.M.S. *Congo* was specifically built and commissioned in 1816 to investigate the upper reaches of the River Congo, West Africa, to discover whether or not it was connected with the River Niger.

John Cranch (1785–1816) **(14)** was appointed as the zoologist. Twenty one of the 56 personnel died from Yellow Fever infection, including Cranch, who was taken ill on the march between Banza (Cooloo) and the Banza Inga and was carried back by natives to the *Congo*. He died on board on 4 September 1816, 31 years of age (Tuckey, 1818).

Extant specimens from this ill-fated expedition were listed by Monod (1970) in his account of Cranch's diary and drawings [see also Appendix of this present paper].

(13) An important collection containing some 32 species of malacostracans, all identified by Richard Owen and collected by F. W. Beechey on H.M.S. *Blossom* (Owen, 1839) was never acquired by the Museum.

Lieut. (later Sir) Edward Belcher (1799–1877) and G. Tradescant Lay (d. 1845) are also acknowledged as collectors of the crustaceans on the *Blossom*. Circumnavigation of the Berhing Strait region was carried out by the ship from 1825–1828. For the voyages of 1826 and 1827 Beechey had been specifically asked to co-operate with the polar expeditions of W. E. Parry and John Franklin. Owen stated that the crustaceans were deposited in the Museum of the Royal College of Surgeons of England (of which he was, at that time, conservator and Hunterian Professor) and also in the the Museum of the Zoological Society of London. In 1845 the Royal College of Surgeons donated 348 specimens to the Britsh Museum (Whitehead, 1969: 166) but apparently none of these were crustaceans. Any *Blossom* specimens were probably destroyed when the College was bombed during May 1941 (Crane, 1975) and no crustaceans were included among the collection from the Zoological Society's Museum in 1853 nor with material purchased from that source in 1855.

(14) Cranch, John (1787–1816: Monod, 1970; Smith, 1980). Cranch was born at Exeter, Devon and died prematurely in September 1816 **(12)**. He became an orphan at an early age, was raised by an uncle and learned the trade of a shoemaker. His interests in natural history brought him under the influence of Colonel Montague **(6)** whom he assisted with the collecting of specimens. He published a number of short articles, two on crustaceans: *Natural History of the Pea Crab* and *Natural History of the Hermit Crab* in *The Weekly Entertainer* for 1811, nos 2 & 4 respectively. Marriage brought him some financial security and he was able to spend more time on his natural history interests. Montagu introduced Cranch to Leach **(1)** and it was through the latter that he met Captain J. K. Tuckey, leader of the *Congo* Expedition. According to White (1847: v) Cranch sold specimens to the British Museum.

(15) H.M.SS *Erebus & Terror* were commissioned for the Antarctic Expedition of 1839–1843. The *Erebus* was commanded by James Clark Ross and the *Terror* by Francis R. M. Crozier. Under the registration number 1844.3 is listed 42 crustaceans, some of which are brachyurans, collected in the New Zealand-Falkland region. The collecting was probably supervised or made by the surgeon and official naturalist on the *Erebus*- Robert McCormick. Other specimens are entered under 1843.70 listed as from Auckland, New Zealand and presented by Lieut. Smith of the same vessel and were *. . . caught by towing net within the tropics . . .* [note in Entomology Dept. register].

(16) There are two anomalies concerning the published reports of the *Erebus* and *Terror*: (i) White identified the material and in his 1847 publication referred to them as from the *. . . Antarctic Exp.*

Presented by the Lords of the Admiralty . . . but without reference to either vessel. Apparently he had illustrations prepared of some species in anticipation of publishing a report, but this was never printed. These illustrations were used by Miers (1874) for his report on *The Zoology of the Voyage of H.M.S. Erebus & Terror* . . . and White's plates were printed with their original names but with a revised nomenclature in the text of the report. (ii) Some of the brachyurans cited in Mier's report came from other collections (eg. the *Xenocarcinus depressus* Cape Howe specimen was purchased from a Mr. Calvert, the *X. tuberculatus* from H.M.S. *Fly* **(17)**, the *Nectocarcinus tuberculatus* from Van Diemen's Land, and the *Cancer novae-zelandiae* from New Zealand were collected by Dr. Andrew Sinclair, R.N.

(17) H.M.S. *Fly*, under command of Captain Francis P. Blackwood surveyed the South-western Pacific from 1841–1846 with the purpose of charting a passage through the Great Barrier Reef. Naturalists on board were zoologist J. W. McGillivray (1822–1867) and geologist J. Beete Jukes (1811–1868).

Forty eight crustaceans from this voyage, collected in the Torres Straits, (registered as 1845.91) and an unspecified number from the Swan River, Port Jackson (1846.89) were presented by J. B. Jukes, (see White, 1847*a*).

(18) H.M.S. *Samarang* was commanded by Capt. Sir Edward Belcher during the coastal surveys of China, Japan, Korea and Borneo from 1843–1846. Arthur Adams (1820–1878) was surgeon naturalist and 270 crustaceans were collected and presented to the Museum by him, registered as 1847.21. [See also **(19)**]

(19) White (1847) lists under *Additional species* over 60 species of crabs as . . . *Presented by Capt. Sir Edw. Belcher, C. B., R. N.* . . but without reference to the *Samarang* The report by Adams & White (1848) omits at least 32 of these species and also includes a number not collected by this vessel (e.g. specimens purchased from Cuming). Additional *Samarang* specimens were described by Miers (1877).

(20) H.M.S. *Rattlesnake*, commanded by Capt. Owen Stanley continued the surveying work of H.M.S. *Fly* in the South western Pacific during 1846–1850 with priority for finding a safe passage through the Torres Strait and Great Barrier Reef. The collections were made by the naturalist specifically appointed, John MacGillivray and also by the ship's assistant surgeon and naturalist, Thomas Henry Huxley (1825–1895). A total of 459 crustaceans are incorporated under numbers 1848.33, 1850.39, 1850.112, 1851.5. 1851.32 and 1851.33, all donated by McGillivray. The first of these (93 specimens) are entered as being from Atlantic, Indian, Australian Seas via Prof. Edwards Forbes (1814–1854: Mills, 1984), indicating that collections were being made on the outward or/and return voyage. *Rattlesnake* specimens were included in the *Alert* **(35)** report by Miers (1881*a*, 1884*a*).

(21) H.M.S. *Herald* worked the Pacific coasts of North and South America during 1845–1847 under the command of Captain Henry Kellett. The ship was accompanied by H.M.S. *Pandora*. Biological collections were made by Kellett and Lieut. James Wood in *Pandora* and presented to the British Museum. However, none of the extant *Herald* crustacean specimens can be assigned to the above period. The *Herald* was then diverted to the Antarctic during 1848 and until 1851 to search for Sir John Franklin's expedition and in 1852 was commissioned by Captain Henry Denham for survey work in the South Western Pacific until 1860. J. W. McGillivray (specifically appointed as naturalist), and M. Rayner (surgeon to the vessel) made the biological collections.

The register entries for 1854.47 and 1855.69 respectively lists 97 and 92 crustaceans collected by MacGillivray. Further crustaceans incorporated under number 1856.33 and entered as . . . *Bought of Cuming in January last or so . . . collected on Voyage of Herald* . . . and under 1856.105 there are 266 specimens from the *Herald* but the collector or donor is not mentioned. Under registration number 1858.172 there are three pages in Adam White's handwriting of *Herald* specimens from S. Pacific localities and collected by F. M. Rayner. The material was reported upon by Miers (see p. 00)

(22) The Leyden Collection/Leyden Museum. White (1847) lists 25 species of decapods from this collection. These were acquired as two consignements. The first, registered as 1844.68 comprise 22 named crab species and 5 macrurans (*Ibacus, Palinurus*). The second, registered as 1845.37 is represented by *Inachus (Macrocheira) kaempferi and 4 small crustaceans in spirit* . . .Both collection were purchased from Mr. G. A. Frank, an Amsterdam dealer in Natural History.

The Rijksmuseum van Natuurlijke Leiden exchanged duplicate specimens from their collections for those of Frank's. A consignement of these, acquired by Frank in 1840, were sold by him to the British Museum in 1844 and 1845. These represent part of the material reported upon by W. de Haan (1835–1850) and contain many syntypic specimens, (Holthuis, 1967; Holthuis, L. B. & Sakai, K. 1970; Yamaguchi, (in press)).

(23) Bell, Thomas (1792–1880: Plarr, 1930; Chatfield, 1980). A dental surgeon at Guy's Hospital until 1861. He was appointed first Professor of Zoology at King's College in 1836 where he pursued his interests in natural history. His best known contribution to carcinology was *A History of British Stalk-Eyed Crustacea* (1853). This work first appeared as eight separate parts between 1844 and 1852 under the title of *A History of British Crustacea* and these were reprinted in 1853 collectively as a single volume with 'Stalk-eyed' added to the title (Gordon, 1959). Bell died at 'The Wakes' Selborne, that he had purchased from Gilbert White's grandniece..

(24) Spirits of wine as then used for preservation was a distallation of ethyl alcohol produced from fermentation of various grains. The early form of industrial methylated spirit with which Gray experimented was probably a crude composite of ethyl and methyl alcohols and was substituted for spirits of wine in about 1862. In 1871 Gray reported . . . *Specimens placed in methylated spirit, the use of which, from its economy, began in 1862, have shown effects which could not have been foreseen prior to the experiment. From that date to 1865, specimens of vertebrate animals, fishes and reptiles, e.g., have become lax, or have lost consistency, and on those which have been longest immersed a deposit of the wood- resins employed in 'methylating' alcohol has accrued upon the surface of the specimens* . . . (British Museum, 1872: 23).

(25) Butler, A. G. (1844–1925: Gilbert, 1977). Butler was the son of Thomas Butler, Assistant to Principal Librarian Sir Antonio Panizzi. He was appointed as an Assistant in the B.M. in 1863 and was Assistant Keeper in charge of the Arthropoda from 1879 until 1901 when he retired due to ill health. He worked on a number of orders of insects but is chiefly remembered as a lepidopterist; he had a particular interest in Fabrician material.

(26) *The Linnean Society has presented to the Museum the Banksian Collection of Insects, containing the type specimens, described by Fabricius* . . . (British Museum, 1864: 24).

(27) A number of the Banks specimens are sewn onto sheets of gray card covered with white paper (Wagner, 1986, Pl. 1, lower photo). Some are inscribed . . . *F* or *Fr* in pencil and, as noted by Whitehead (1969: 177) . . . *The style of writing on the cards and the colour of both ink and paper suggest that these are contemporary with the period of the Cook voyages. The specimens may, however, have been duplicates that were once in Kiel and were sent to Banks* . . .

(28) The global oceanic investigations made by H.M.S. *Challenger* have been well documented (Spry. 1876; Murray, 1895; Swire, 1938; Moseley, 1944; Linklater, 1972). The brachyuran crabs were described by Miers (1886) who listed over 280 species or varieties, 50 of which were new to science. A not inconsiderable part of the *Challenger* collection was designated as duplicates and transferred from the *Challenger* office in Edinburgh to the British Museum (Natural History) in 1890, to be used for exchange purposes. A major dispersal of *Challenger* specimens, for example, was noted in the minutes of the Standing Committee of the Trustees in July and October 1899 when 1070 and 1092 specimens respectively were designated for sending to various institutions. (Lingwood, 1981: 73) pointed out that at . . . *least 21 different institutions received a total of 4000 specimens by this means* . . . some representing type material (Wheeler & O'Riordan, 1969)

Handwritten lists of *Challenger* duplicates disseminated to eight institutions are contained in a bound volume in the Library of the Zoology Department and reveals that crustacean specimens were sent to University College Cardiff, Sheffield Public Museum, University College of Sheffield, Perthshire Museum and, by far the largest amount, to University College Dundee. The list of specimens donated to Dundee in 1899 is in the handwriting of W. T. Calman who at that period was an Assistant Lecturer and Demonstrator in the Natural History Department of University College, Dundee, having previously been laboratory assistant to D'Arcy Thompson who had built up a. . . *fine teaching Museum at University College, Dundee* . . . (Gordon, 1954). That this list was written on British Museum stationery by Calman suggests that he compiled it during a visit to the Museum in order to select specimens, perhaps under the supervision of Jeffrey Bell.

In 1956 the BMNH acquired a considerable part of the contents of the Dundee University College Museum resulting in the return of *Challenger* material. Of the twelve brachyuran species included in Calman's original list (and approved by the Trustees in October 1899) five are not included in the Report by Miers (1886) and may have been part of the *Occasional collection* **(29)**. Nine of the species on Calman's list are not included in Thompson's 1901 *Catalogue* and were also not among the specimens returned to the BMNH in 1956.

The bulk of the *Challenger* brachyuran material is registered as 1884.31 and additional specimens as 1884.44.

(29) Two catagories of *Challenger* specimens were recognised initially, the *Occasional specimens*—incidental to the purpose of the voyage and those which were essential to its purpose i.e. *Piece justicative* (Lingwood, 1981).

(30) Staff employed in the Zoological Department at Bloomsbury in 1878 at the time of the first major relocation of the Department.

Keeper-Dr Albert Günther; *Assistant Keeper*-Frederick Smith.

First Class Assistants: Arthur Gardener Butler (insects); Edgar Albert Smith (molluscs); Richard Bowdler Sharp (birds).

Second Class Assistants: Charles Owen Waterhouse (insects); Edward John Miers (crustaceans); Stuart Oliver Ridley (sponges and alcyonians); Francis Jeffrey Bell (echinoderms and annulosa).

First Class Attendants: Edward Gerrard; James Ingham; John Saunders; Edward Tugwell Boulton; Robert William Tomlinson.

Second Class Attendants: James West; Samuel Atkinson; James Lewis Rudd; Duncan Mitchie; Charles Chubb.

Duties of the Attendants varied. Much of their time was spent mounting and labelling gallery specimens and helping the senior staff (Assistants). Edward Gerrard was the overall supervisor and conservator of mammals, attended to students of the mammalia and to the packing and unpacking of vertebrate collections. James West mounted and repaired birds for the gallery, cleaned the skins and was also responsible for … *regulating the outgoing messages of the Department* … John Saunders worked in the library. Charles Chubb attended to visitors studying birds. One duty shared by all the Attendants was 'watching' when the galleries were surveyed for irregularities of contents or behaviour of visitors. The outcome of this practice was occasionally noted in the Trustees Minutes. For example, the watchfulness of Attendant Duncan Mitchie on one Saturday evening in July 1879 resulted in a young German named Brittermann being apprehended in the act of extracting a glass eye from the stuffed Java Ox in the mammalian saloon. The Trustees (represented by the Principal Librarian) prosecuted and Brittermann was sentenced at Bow Street Court to two months imprisonment, subsequently reduced to one month [Official Documents 1879–1880: NHM Archives].

(31) St. John H. C., (Tizard, 1900), captained H.M.S. *Sylvia* from 1869–1872 and made extensive collections off the coast of Japan and in the Korean Sea during 1870. These were presented via Gwyn Jeffreys **(41)** and registered as 1800.22, 1878: 11, 1878.29; many brachyurans are included. Miers (1879*b*) reported upon the collections. St. John rose to the rank of Rear Admiral. [Keepers Corresp: NHM Archives].

(32) The Admiralty expedition of 1874–75 to make observation on the Transit of Venus included four naturalists. Three, Dr. I. B. Balfour (1853–1922: botanists and geologist), Mr. George Gulliver (1804–1882: general faunal investigations) and Mr. H. H. Slater (1851–1934: cave explorations and extinct animals) were assigned to Rodriquez; the fourth, the Rev. A. E. Eaton (1845–1929), visited Kerguelen. The ships deployed were H.M.SS *Volgae* and *Supply*. Miers published on some of the specimens collected (see Miers 1875 & 1876, 1879*c*). Only one brachyuran species was collected on Kerguelen but 20 are listed from Rodriquez. The collection is registered as 1876.10. The Royal Society Council directed that … *complete sets should be reserved for the National Collections, and that the remainder should be distributed to the Museum of the Royal College of Surgeons in London, the Government Museums of Natural History in Edinburgh and Dublin, the University Museums of Oxford and Cambridge, and other Institutions* … (in Miers, 1879*c*).

(33) H.M.S. *Peterel* was commanded by Commander W. E. Cookson, R. N. and visited the Galapagos Islands, presumably under the orders of the commander of the Pacific Station, Rear

Admiral Hon. A. A. Cochrane, who directed that any collections obtained should be deposited in the British Museum. During the two week visit, in June 1875, landings were made on Charles and Abington Islands and at Tagus and Iguana Coves in the Albemarle Islands. Cookson, assisted by Staff-Surgeon Bett, collected the zoological specimens. The collection is registered as 1876.18 (Miers, 1877).

(34) The *Isbjorn* was a small norwegian cutter commanded by Captain (later Sir) Albert H. Markham who accompanied Sir Henry Gore Booth to the Barent's Sea in 1879. The collection, reported upon by Miers (1881*b*), is registered as 1879.22.

(35) Baron Hermann von Maltzan (1873–1891: Crossé & Fischer, 1892). A German naturalist who, in 1874 collected molluscs in the Mediterranean and in 1879 visited southern Spain and the Algarve region of Portugal. He contracted malaria while collecting in Senegambia in 1880 and which caused his premature death in 1891. His last collecting expeditions were to Crete (1883) and Sardinia and Sicily (1884) when he was accompanied by his wife, an artists and also a devotee to natural history. The large collection of crustaceans purchased included many brachyurans and is registered as 1881.24 (Miers 1881c).

(36) H.M.S. *Alert* was commissioned for surveying work in South American and South Pacific waters during 1878–82. The vessel was commanded initially by Captain G. S. Nares R. N. who was replaced by Captain J. L. P. Maclear in spring of 1879. Extensive biological collections were made under the supervision of Staff Surgeon R. W. Coppinger R. N., scientist on the voyage, and these were presented to the British Museum.

It is interesting to note how quickly these specimens were received by the Museum throughout the voyage. For example, the collections made in the Straits of Magallan to Trinidad Channel region of South America, from January to March 1879, had been received (along with material from some previous stations), identified and incorporated (reg. no. 1879.19) by September of the same year and comprised some 150 specimens representing 34 species.

In addition to these, *Alert* collections were incorporated as follows: 1880.30, 1881.26 (S. American station), 1881.31, 1881.41, 1882.7 (Australian station), 1882.24, 1883.26 (Indian Ocean station). (Miers, 1881a; 1884a; 1885). In the *Alert* report Miers also cited specimens from the *Rattlesnake* and *Herald* **(20)** & **(21)**.

(37) Henderson, John Robert (1863–1925: Calman, 1926). Henderson graduated in medicine at the University of Edinburgh but turned to marine zoology. In 1886 he was appointed Professor of Zoology at Christian College, Madras, India and in 1909 Superintendent of the Madras Museum. Henderson retired to Edinburgh in 1919 and died in 1925. He reported on the *Challenger* anomurans (including the dromiacean crabs) and also published many papers on Indian carcinology (Balss & Gruner, 1961: 1967). He donated specimens to the British Museum (Natural History) during the 1890s including collections made by Francis Day **(56)** and his predecessor at the Madras Museum-Edgar Thurston.

(38) Bate, Charles Spence F. R. S. (1818–1889: G. S. B, 1890). Bate was a dentist of considerable local repute who practiced first at Swansea and then Plymouth where he took over his father's practice. He developed interests in natural history especially the crustaceans. His best known published work, in co-authorship with J. O. Westwood (Hope Professor of Zoology at Oxford University) was *A History of the British Sessile-Eyed Crustacea* (Bate & Westwood, 1861–2, 1868). He published papers on developmental morphology of crustaceans and reported upon the *Challenger* Macrura (Bate, 1888).

(39) *Travailleur*. A French navy paddle steamer suitably modified for marine exploration. The *Travailleur* made at least three voyages. The first in 1880 was southward to the Bay of Biscay and with Gwny Jeffreys and A. M. Norman, **(41)** & **(42)**, aboard as advisers on dredging matters. The second was to the coast of Portugal and into the Mediterranean as far as Corsica, and the third as far south as the Canary Islands (Milne Edwards, 1882; Filhol, 1885).

The vessel carried a number of distinguished french scientists belonging to the *Commission* formed to effect this deep-water exploration and included Alphonse Milne Edwards (1835–1900). During these voyages benthic trawling was carried out at a number of stations. Detailed descriptions of the decapods collected were published by H. Milne Edwards & Bouvier (1900).

(40) *Talisman.* A larger vessel that replaced the *Travailleur* to continue exploratory deep-sea research initiated by the French government. In 1883 the *Talisman*, with A. Milne Edwards and other members of the *Commission* on board, explored the off-shore and coastal waters from Portugal southward to Morocco and returned via the Azores, (H. Milne Edwards & Bouvier, 1900).

In 1899 the British Museum (Natural History) received 89 specimens, (comprising 53 species, 22 of which were brachyurans), from the *Travailleur* and *Talisman* collections. These were acquired as an exchange of specimens with the Museum National D'Histoire Naturelle, Paris. Further specimens were received in 1956 when the BMNH acquired collections from the Museum of University College, Dundee (Thompson, 1901 & **(28)**).

(41) Jeffreys, John Gwyn (1809–1885: Mills, 1978). A Swansea solicitor and later a barrister who in his youth became a devotee to conchology. He eventually retired from the legal profession to write on conchology and to conduct collecting expeditions to the Shetland Islands, west coast of Scotland and the Channel Islands using his brother-in-law's yacht *Osprey* on which he was joined by A. M. Norman **(42)** and others. Jeffreys replaced W. B. Carpenter and C. Wyville Thomson on *Porcupine* **(69)** for part of the second cruise in 1869 and joined the *Valorous* **(53)**, commanded by Capt. Loftus F. Jones (a supply ship to Capt. G. S. Nares Arctic Expedition) and dredged off west Greenland.

There are several entries of specimens collected by these vessels in the *Norman Register* for 1911.11.8. Jeffreys also presented to the BMNH the large collection of crustaceans made by Capt. St. John and from Korean & Japanese waters **(31)**.

(42) Norman, Alfred Merle (1831–1918: Mills, 1980). A clergyman who took up the study of marine biology in the early 1850's and collected in many parts of the British Isles. He participated in Gwyn Jeffrey's **(41)** expeditions to the Shetland Islands and that of the *Travailleur's* **(39)** 1880 voyage to the Bay of Biscay. Norman . . . *amassed a collection of invertebrates second to none in private hands in Europe, and became a respected authority on nearly every group of invertebrate animals* . . . (Mills, 1980). His collections were purchased by the BMNH and his library donated to the Zoology Department, University of Cambridge.

The *Norman Collection* was purchased in four instalments. The first, in 1898, consisted of over 26,000 specimens; the second, acquired in 1900, included . . . *the remainder of the British Echinoderms, 3000 species of Entomostraca, 49 species of Mediterranean Copepoda, 925 microscopic preparations of Entomostraca, and collections of Polychaeta, Tunicata, Mollusca, Crustacea, Anthozoa etc;* . . . The third instalment was acquired in 1910 and comprised . . . *about 3,290 specimens of sponges (including 195 types and 184 co-types) and of a number of specimens of Hydrozoa, Anthozoa, Crustacea etc* . . . The final instalment (1911) comprised . . . *chiefly of Mollusca, Crustacea, Polyzoa, etc;* . . . (British Museum, 1899: 85; 1901: 98; 1911: 112; 1912: 106). The first purchase included over 1,000 crustaceans, of these 367 were brachyurans from various localities and are registered as 1898.5.7 but the bulk of the decapods were acquired in the third consignment and were incorporated by Calman and Barnett (Calman's Attendant) under the number 1911.11.8. Norman also presented a number of species between 1884 and 1903.

(43) H.M.S. *Nassau* was commanded by Captain R. C. Mayne, R. N., while re-surveying the Straits of Magellan and passage into the Pacific during 1866 and 1869. Dr. R. O. Cunningham (Professor of Natural History, Queen's University Belfast), accompanied the ship to make biological collections (Cunningham, 1871). The crustaceans acquired by the BM are registered as 1869.37.

(44) Indian Museum, Calcutta (sometimes cited as the Calcutta Museum). Between 1879 and 1903 several consignements of crustaceans, that included many brachyurans named by Wood-Mason or by Alcock **(45)** & **(46)** were purchased from or donated by the Indian Museum Trustees.

(45) Wood-Mason, James. Superintendent of the Indian Museum, Calcutta until 1893 when he was medically certificated home but died in transit. He was succeeded by A. W. Alcock **(46)**.

(46) Alcock, Alfred William (1859–1933: Calman et al, 1933). Alcock was appointed Surgeon-Naturalist to the Indian Marine Survey and served on the Royal Indian Survey Ship *Investigator* from November 1888 until 1892 when he was succeeded by A. R. S. Anderson **(47)**. During intervals ashore he worked with Wood-Mason at the Indian Museum. In 1893 Alcock was appointed Superintendent of the Indian Museum, resigned in 1907, and returned to England to work with Patrick Manson at the London School of Tropical Medicine at the Albert Dock.

(47) Anderson, A. R. S. The Surgeon-Naturalist who succeeded Alcock on *Investigator*. Specimens collected by Anderson and acquired by the British Museum (Natural History) were registered (no. 1886.52) as being purchased from the *Trustees of the Calcutta Museum* **(44)** and were reported upon by J. de Man (1887–8).

(48) Lockington, W. N. was an architect employed by the city of San Franscisco but apparently had to ... *look to Nat' Hist. for a living* ... [11 November 1879, Miers letters: NHM Archives]. Lockington seems to have sold his specimens to Edward Gerrard Jr. **(49)**) from whom the BM purchased the identified collections. These were incorporated as 1877.2, 1878.9 and 1879.1.

(49) Gerrard, Edward Jr. A son of the Edward Gerrard (Güther, 1911a) employed by the British Museum and British Museum (Natural History) from 1841–1896. Gerrard appears to have traded first from King's Place, but later became established as a renown natural history dealer at 61 College Place, Camden Town, London where the buisness became the 'clearing house' for worldwide collections obtained by naturalists and safaris. The British Museum obtained (chiefly by purchase) a considerable number of specimens from the firm of Gerrards'. In 1933 the business was divided: the biological supply side moved to Pentonville Road and in 1963 to East Preston, Sussex. The Gerrards at College Place became re-established in Royal College Street as Gerrard (Hire) Ltd.

(50) Smithsonian Insitution, Washington D.C. The earliest collection was received in 1857 (amphipods), but in 1861 the British Museum acquired two important collections. The first (registered as 1861.44) contained over 200 donated species (78 brachyurans) comprising ... *mostly types selected compared and labelled by Wm Stimpson* ... **(51)** [Entry in Entomology Register]. The second collection (reg. no. 1861.45) comprised 55 species (27 brachyurans) purchased from Stimpson (Evans, 1967). In 1880 some 32 species of crustaceans were presented (9 brachyurans) orginating from the United States Fishery Commissioners (reg. as 1880. 26 & 29). In 1890 a total of 48 species were received (as an exchange) that included 10 brachyuran species, all determined by S. I. Smith **(52)**.

(51) Stimpson, William (1832–1872: Mayer, 1918). Stimpson accompanied Professor J. L. R. Agassiz on many collecting expeditions and in 1852 was appointed naturalist to the North Pacific Exploring Expedition. In 1850 he was in charge of the Department of Invertebrates at the Smithsonian Institution. Stimpson also visited England where he did some coastal dredging. Most of the vast collections he amassed throughout his life were sadly destroyed by the great Chicago fire.

(52) Smith, Sidney Irving (1843–1926: Coe, 1932). Professor-Emeritus of comparative anatomy at Yale University and leading authority on marine crustaceans of the American Atlantic.

(53) H.M.S. *Valorous* was a supply vessel to H.M.SS. *Alert* and *Discovery* during the Arctic Expedition of 1875 (Jeffreys, 1876). The ship was commanded by Captain Loftus F. Jones. The scientists on board were J. Gwyn Jeffreys assisted by W. L. Carpenter (W. B. Carpenter's son). Some tow-net samples and several shallow-water dredge samples were obtained from one of the ship's cutters. The crustaceans were entrusted to A.M. Norman **(42)** for identification and eventually acquired by the BMNH in 1881 (registered as 1881.6, and also as 1903.5.20). There was no report published on the collection.

(54) The International Fisheries Exhibition of 1883 was held in the Royal Horticultural Gardens, north of the Natural History Museum, and under the patronage of the Prince of Wales. Albert Günther was one of the vice-presidents and during the period of the exhibition he arranged evening visits to the recently completed and electrically lit Spirit Building of the BMNH.

Francis Day **(56)** wrote to Miers asking if he had found time to examine the stalk-eyed crustaceans on display in the Indian section of the Exhibition remarking that ... *I expect to be in town in about a fortnight and if you would make it convenient to look in before the public are admitted of a morning I would meet you and we could select a complete set for the British Museum* ... *I propose commencing to dismantle* [the exhibits] *shortly-* ... [October 1883, Miers letters: NHM Archives]. Miers replied that he ... *must refer the matter to Dr. Gunther which I will do on* the first opportunity . . . and . . . *Dr. Gunther will not have the specs. if the condition is to be added that I work them out* . . . [4 October 1883, Miers letters: NHM Archives]. Nevertheless, the collection was named by Miers and comprised some 57 specimens representing 26 species presented by the Commissioners for the Straits Settlements and registered as 1883.24. A later collection, from the Chinese Court, of 26 specimens comprising 12 species is registered as 1884.2.

(55) Yerbury, John William (1847–1928: Gilbert, 1977). Yerbury was born in Bengal, educated at Wellington College and at Woolwich, commissioned in the Royal Artillery in 1867 and served in various parts of the world until his retiremenement as Lieut. Colonel in 1892. He was stationed for many years in Aden and although his particular interest was ornithology he made general natural history collections. After his retirement he returned to Aden for a few months in 1895. He was an excellent collector and somewhat shy and reserved. Eventually increasing blindness interfered with his work and he was knocked down by a motor car sustaining injuries that caused his premature death.

(56) Day, Francis (1829–1889; Anon, 1889). Day was Deputy Surgeon General of the Indian Medical Service and devoted much of his time to the study of Indian fishes. He was appointed Inspector General of fisheries for the Government of Indian in 1871. His library and manuscripts are deposited in the Cheltenham Public Library.

(57) H.M.S. *Flying Fish* surveyed in far eastern waters and was commanded by Captain J. F. L. P. Maclear from 1883 until the end of 1886. The vessel was ordered home via Christmas Island to collect geological samples for John Murray but biological collections were also made. A few brachyuran species are represented among the crustaceans registered as 1887.10; all are from Christmas Island.

(58) Robillard, Jean Aimé Victor de (?1813–1892: 1892, *Le Vrai Mauricien*, 3 juin. Not seen). Robillard, a native of Mauritius, appears to have been a sugar plantation owner whose business must have failed since he took to collecting and selling natural history specimens to . . . *obtain the necesseries of life* . . . [Günther, Oct. 1878: NHM Archives].

(59) Royal Society of London: 149 crustaceans were included in the large collection from Fernando Noronha made by H. N. Ridley and S. A. Ramage under the direction of the Royal Society of London, (Ridley, 1888). H. N. Ridley was at one time an associate in the Department of Botany of the British Museum and later curator of the Botanic Gardens, Singapore.

(60) The Colonial Exhibition of 1886 was held in South Kensington in the grounds later occupied by the Imperial Institute, i.e. part of the area between the present Natural History Museum and the Albert Hall. Fifty eight crustaceans were purchased from the Commissioners of the New Zealand Court and included 16 brachyuran species (reg. 1886.56).

(61) Seven species of brachyurans are included in the collection registered as 1888.26 and collected by Mr.George A. Ramage, the naturalist employed by the joint Committee of the Royal Society and the British Association for the investigation of the fauna and flora of the Lesser Antilles (Sclater, 1889: 394). Also cited as *West Indian Exploration Committee* (see Pocock, 1893*a*: 677) and *West Indian Commission*.

(62) Sir John Murray (1841–1914: A.E.S. 1915–16). Murray made collections between 1883 and 1894 along the west coast of Scotland in his small steam yacht *Medusa*. Four entries in the crustacean accession register (1887.21; 1894.9.18; 1894.10.4 and 1894.10.8) list material presented by Murray from this locality; these include many brachyurans and must represent at least part of the material obtained during these expeditions.
During 1880 and 1882 he participated in the exploration of the Faroe Channel in H.M.S. *Knight Errant* and H.M.S. *Triton* **(63)** & **(64)**.

John Murray also donated specimens (accessed as 1898.10.31) collected by Mr. C. W. Andrews, (then employed by the Museum's Department of Geology), from Christmas Island, Indian Ocean. Murray had realised the value of the phosphate deposits on the Island and a company was formed to develop these resources. Andrew's, at Murray's expense, carried out the necessary exploratory work (Andrews, C.W. 1900).

(63) The paddle steamer *Knight Errant* was hired by the Admiralty in 1880 to enable Charles Wyville Thomson and Thomas Henry Tizard to make a more thorough investigation of the

Faroe-Shetland Channel to determine the presence of a suspected ridge (later named the Wyville Thomson Ridge). The vessel was commanded by T. H. Tizard and was joined by John Murray. Of the crustacean specimens acquired by the British Museum (Natural History) all, except one sample of amphipods, were registered with the *Norman Collection* **(42)**; only one crab species *(Anamathia carpenteri*, reg. 1911.11.8.384) was represented.

(64) H.M.S. *Triton*, commissioned by T. H. Tizard in 1882 to amplify the investigations carried out in 1880 on the Faroe-Shetland Channel by the *Knight-Errant* **(63)**. John Murray participated in the cruise. The *Triton* was used for surveying work in British waters until 1914. Specimens collected were acquired by the BMNH via the *Norman Collection* **(42)**.

(65) H.M.S. *Rambler* visited the Tizard and Macclesfield Banks, China Seas in 1888–9 to carry out survey work. The ship was commanded by W. Usborne Moore, R.N. and the biological collections were made by P. W. Bassett-Smith the ship's surgeon, who acknowledged the . . . *most valuable assistance* . . . of Lieut Parry . . . *in collecting and packing the specimens* . . . Capt. J. J. Walker, F.L.S (Chief Engineer) also assisted (Bassett-Smith, 1894). Specimens collected were donated to the British Museum (Natural History) and registered by Pocock (accession no. 1899.12.17.20) who also reported upon the collection (Pocock, 1890).

(66) H.M.S. *Penguin* surveyed Australian and south western Pacific waters during 1890–1893 and was commanded by Commander W. Usborne Moore and later (1893–1895) by Commander A. F. Balfour. The earliest specimens acquired by the British Museum (Natural History), (registered as 1891.6.20) were collected by the chief engineer J. J. Walker. In 1892 Surgeon P. W. Bassett-Smith had transferred from H.M.S. *Rambler* **(65)** to the *Penguin* in order to continue his sampling of the Macclesfield and Holothuria Banks. In 1893 he was assigned to H.M.S. *Egeria* **(67)** which continued the work of the *Penguin*.

Considerable collections were made by the *Penguin*. The crustaceans were in excess of 1270 specimens of which some 740 were brachyuran crabs. The crustaceans were identified by Pocock and registered by him in several lots between 1892 and 1894) only the stomatopods were written up and published (Pocock,1893).

(67) H.M.S. *Egeria* was under the command of Commander A. M. Field from 1890 until 1894 and surveyed the Macclesfield Bank, China Sea, to complete earlier work by H.M.SS. *Rambler* and *Penguin* (**(65)** & **(66)**). P. W. Bassett-Smith transferred to *Egeria* from *Penguin* to make further collections that were acquired by the British Museum (Natural History). The crustaceans from *Egeria* were provisionally identified by Pocock and registered by him as 1893.11.3.

(68) The specimens received on an exchange basis with the Warsaw Museum were chiefly from the collections made by Stolzman and Jelski.

Constantin Jelski (1837–1896: Kozuchowsk, 1961) had studied medicine at Moscow (1853–1856) and natural science at Kiev in 1856, qualifying as a 'non-titled professor' in 1861 and formally graduating through a thesis on malacology in 1862. During 1862 and 1863 he was curator of the zoological collections at Kiev University. In May 1863 he made excursions to Bessarabia, the Black Sea and to Turkey, in 1865–1871 to French Guiana and from 1871–1879 to Peru.

(69) H.M.S. *Porcupine* when under the command of Captain Edward Killiwick Calver, made three cruises in 1869: (i) to the west of Ireland from May until July and under the direction of Gwyn Jeffries **(41)**; (ii) to south-western Ireland from July until August, directed by Wyville Thomson; (iii) in the Faroe-Shetland region from August until September, the scientific direction being shared between W. B. Carpenter and Wyville Thomson.

In 1870 the *Porcupine* visited the Mediterranean, departing from Falmouth in July and returning in October. Gwyn Jeffries directed the scientific work and was assisted by the Swedish naturalist Joshua Lindahl from Falmouth to Gibraltar and by W. B. Carpenter for the work in the Mediterranean. Decapods collected during these cruises were acquired by the British Museum (Natural History) via the *Norman Collection* **(42)**; a few were presented by Carpenter (reg. 1882.14) and the specimens figured by Thomson in his *The Depths of the Sea* (1873) were acquired in 1907 (reg. 1907. 8.28).

(70) Bedford, Francis Perch (1875–1900: Venn, 1940). Bedford was a Scholar of King's College, Cambridge and a researcher specialising in echinoderms. He visited and collected with W. F.

Lanchester (71)) in the Straits Settlements during 1900 and after his return died prematurely at the age of 25 in October of that year.

(71) Lanchester, William Forster. (1875–1953: Anon.1953). Lanchester was a graduate of King's College, Cambridge and later a Demonstrator in Zoology at University College, Dundee. He collected in the Straits Settlements (Singapore and Malacca) during 1899 accompanied by F. P. Bedford (70). The brachyuran crabs of this collection were acquired by the British Museum (Natural History) in 1900 and registered as 1900.10.22 They are represented by 364 specimens comprising some 112 species. The collection was reported upon by Lanchester (1900). Lanchester also donated crustaceans to the BMNH from Malaysia sent to him by R. Shelford (Curator of the Sarawak Museum). These include some 23 species of brachyuran crabs; the collection is registered as 1900.12.1 and was reported upon by Lanchester (Lanchester 1900*a*). Specimens of the *Skeat* Expedition studied by him (Lanchester, 1901) are deposited in the collections of the University Museum of Zoology, Cambridge.

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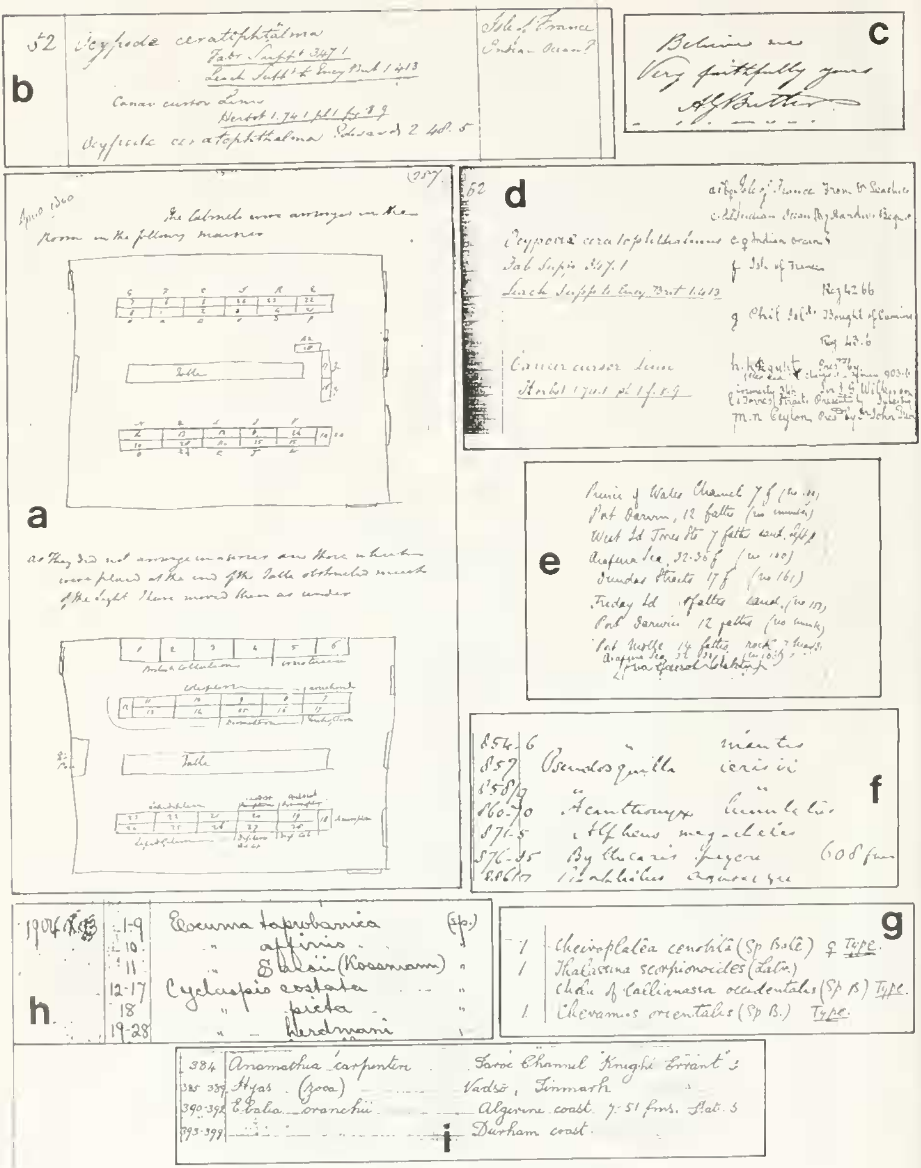
a
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Table

52 Ocypode ceratophthalma
Fabr Suppl 347 1
Leach Suppl to Ency Brit 1 413
Cancer cursor Linn
Herbst 1. 74 1 pl 1 fig 8 9
Ocypode ceratophthalma Edwards 2 48. 5
Isle of France
Indian Ocean?

Believe me
Very faithfully yours
A G Butler

(257)
April 1840
The Cabinets were arranged in the Room in the following manner

As they did not arrange in a series and those which were placed at the end of the Table obstructed much of the light I have moved them as under

1904 | 1-9 | Eocuma taprobanica (sp.)
| 10 | " affinis "
| 11 | " Stebbingi (Kossmann) "
| 12-17 | Cyclaspis costata "
| 18 | " picta "
| 19-28 | " herdmani

1 | Cheiroplatea cenobita (Sp Bate) ♀ Type.
1 | Thalassina scorpionoides (Latr.)
Chela of Callianassa occidentalis (Sp B) Type.
1 | Chevamus orientalis (Sp B.) Type.

384 Anamathia carpenteri Faroe Channel "Knight Errant"
385-389 Hyas (zoea) Vadsö, Finmark
390-392 Ebalia cranchii Algerine coast 7-51 fms. Stat. 5
393-399 Durham coast

Fig. 1 A. Plan of the entomological cabinets as sketched by Gray in April 1840 and as arranged in the 'Insect Room' at the British Museum, Bloomsbury. Handwritings of: B. George Samouelle (part of page of the bound quarto register). C. Arthur Butler. D (left) an unknown handwriting and (right) Adam White's, (part of page of *Catalogue of Crustacea*). E. Edward Miers. F. Jeffrey Bell. G. Reginald Pocock. H. Thomas Calman. I. William Barnett.

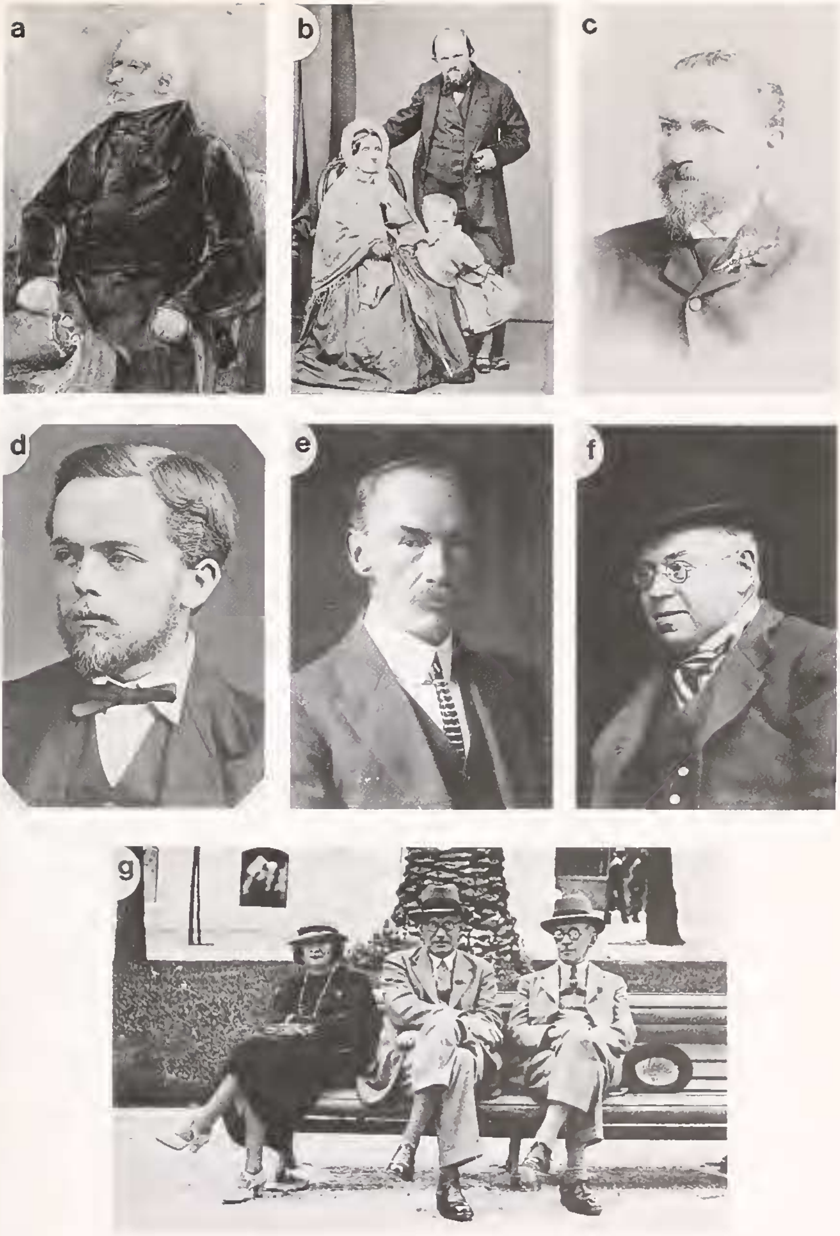

Fig. 2 A. George Samouelle. B. Adam White (age 48), his mother (78) and son (2), Dec. 1865. C. Reginald Gardiner Butler. D. Edward John Miers. E. Reginald Innes Pocock. F. Francis Jeffrey Bell. G. from left to right, Isabella Gordon, Stanley Wells Kemp, William Thomas Calman (at International Congress of Zoology, Lisbon 1938).

APPENDIX

List of the extant specimens of brachyuran crabs comprising *Banks, Leach & Montagu* and *Pennant* specimens, in the collections of The Natural History Museum, London.

Except where stated, these specimens are pinned into cabinet drawers of the Dry Crustacea Collection; with few exceptions they are listed here under currently used names. Measurements are carapace lengths.

Banks specimens

Each specimen has a small printed label inscribed Banks Coll. glued to the carapace or an appendage. A few have a locality label placed nearby, but for the majority there is no information.

Callinectes danae Smith, 1869
1♂ 40.0mm; originally *Callinectes diacantha*; redet. by A. B. Williams.

'*Callinectes hastatus*'
1♂ without carapace.

Carcinus maenas (Linnaeus,1758)
1♂ 51.0mm.

Charybdis (Goniohellenus) truncata (Fabricius, 1798)
1♀ 21.0mm; det. by J. E. Leene.

Charybdis (Goniohellenus) variegata (Fabricius, 1798)
1♂ 22.0mm; det. J. E. Leene.

Corystes cassivelaunus (Pennant, 1777)
2♂♂ 31.0 & 34.0mm.

Cryptopodia fornicata (Fabricius, 1781)
3♀♀ 31.0mm, 35.0mm, 40.0mm; an associated label reads 'Borneo'.

Daira perlata (Herbst, 1790)
1♂ 27.0mm.

Demania splendida Laurie, 1906
1♂ 46.0mm; with attached label inscribed '*Lophoxanthus scaberrimus* (H.M.Edw) A.B'.

Galene bispinosa (Herbst, 1783)
1♂ 39.0mm; associated label inscribed 'China Swatow'.

Halimede ochtodes (Herbst, 1783)
1♂ 25.0mm; labelled '*Polycremnus ochtocles*'.

'*Heteractaea semilanata=globosus* Dana'
1♀ 15.0mm.

Hyas coarctatus Leach, 1815
2♀♀ 19.0mm., 21.0mm.

Inachus phalangium (Fabricius, 1775)
1♀ 21.0mm; labelled '*Inachus dorynchus*'.

Ixa cylindricus (Fabricius, 1777)
1♀ 18.0mm.

Lambrus echinatus Herbst, 1790
1♂ 27.0mm; 1♀ 39.0mm.

Lambrus longispinus Miers, 1879
1♂ 26.0mm.

Leucosia anatum (Herbst, 1783)
Listed as *Leucosia urania* White, 1847: 48. Three specimens labelled 'Banks Coll.' are placed near to labels inscribed '86 Indian Ocean'. (1♀ 36.0mm), '86 China' (1♂ 24.0mm) and '86 E. Indies' (1♂ 24.0mm).

Matuta sp.
1♀ 32.0mm with associated label inscribed 'Shark Bay'; det. as *M.lunaris* (Forskal, 1775) by B. Galil in 1989.

Myomenippe rumphii Fabricius, 1798
1♂ 39.0mm; 1♀ 36.0mm (front damaged).

Orithyia sinica (Linnaeus, 1771)
1♂ 27.0mm; labelled '*Orithyia mamillaris*'.

Ozius tuberculosus H. Milne Edwards, 1834
1♂ 35.0mm; 1♀ 30.0mm (with ?106 on right chela); 1♀ 11.0mm.

Paramithrax peroni H. Milne Edwards, 1834
♂ 70.0mm; an associated label is inscribed 'Bay of Islands, New Zealand' but this locality probably refers to the nearby specimen 'f' listed by White (1847: 7) and presented by Lieut. A. Smith, R.N.

Parthenope macrochelos (Herbst, 1790)
1♀ 34.0mm.

Philyra globulosa H. Milne Edwards, 1837
1♂ 19.0mm; 1♀ 22.0mm (see p. 220).

Planes minutus (Linnaeus, 1758)
1♂ 17.0mm.

Portunus sayi (Gibbes, 1850)
1♀ 39.0mm.

Potamonautes (Potamonautes) perlatus (H. Milne Edwards, 1837)
1♀ 32.0mm.

'*Pseudocarcinus poressa*'
1♂ 32.0mm; 1♀ 35.0mm.

Ruppelloides convexus A. Milne Edwards, 1867
1♀ 19.0mm.

Schizophrys aspera (H. Milne Edwards, 1834)
carapace only 35.0mm; an associated label reads 'Java Seas'.

Varuna litterata (Fabricius, 1798)
1♀ 40.0mm; an associated label reads 'Eastern Seas'.

Zozymus aeneus (Linnaeus, 1758)
Four specimens are associated with above name label. 1♂ 46.0mm (also labelled '*Lophoxanthus scaberrimus* H. Milne Edwards A.B'); 1♂ 35.0mm; 2♀♀ 37.0mm, 41.0mm (also labelled '*Demania splendida* Laurie') in W. T. Calman's handwriting.

Portunidae undetermined
2♂♂ 19.0mm & 29.0mm.

Callinectes sp.
1♀ 38.0mm; near to label inscribed '*C.diacanthus*'.

'*Neptunus diacanthus*'
1♂ 60.0mm also placed near the above label.

Each of the following specimens is sewn to a sheet of grey card covered with heavy white paper (see Wagner, 1986, Pl. I). The species name is written in ink and the initial 'F' is inscribed in pencil on some. (See Whitehead 1969: 117–8 for remarks on these).

Conchaecetes artificiosus (Fabricius, 1778)
2♂♂ 24.0mm; labelled '*Cancer artificiosus* Dald'.

Doclea muricata (Fabricius, 1787)
Five specimens labelled: (i) '*Cancer muricatus* Mas.' 'F', without carapace, sex not det; (ii) ♂ 23.0mm; (iii) '*Cancer hybridus* Mas' ♂ 37.0mm; (iv) '*Cancer hybridus hirsutus* per Collectorem Detritus Mas' 'Dald' ♂ 41.0mm; (v) unsexed, prob a male 39.0mm not inscribed.

Doclea ovis (Herbst, 1788)
Three specimens labelled: (i) '*Cancer ovis* foem.' 'Dald' ♀ 47.0mm; (ii) '*Cancer ovis* foem.' 'Daldorff' 'F' ♀ 46.0mm; (iii) '*Cancer ovis hirsutus* per Collectorum detritus' 'F' ♂ 42.0mm. The latter specimen has an associated printed label '*Doclea ovis* Penang'. Wagner (1986: 897) suggested the locality may be Bay of Bengal, possibly Tranquebar, but did not qualify this opinion.

Dorippe quadridens (Fabricius, 1798)
Three specimens labelled: (i) '*Cancer fallax* foem' ♀ 29.0mm; (ii) '*D.nodulosa*' 'F' ♂ 30.0mm; (iii) '*Cancer fallax* Mas.' 'Dald' ♂ 29.0mm; all redet. by R. B. Manning.

Dorippoides facchino (Herbst, 1782)
♂ 22.0mm; labelled '*Cancer polyphylax callidus* Mas', redet. by R. B. Manning.

'*Egeria arachnoides*'
Two specimens originally as: (i) '*Cancer rostrata* foem' ♀ 25.0mm; (ii) '*Cancer rostratus* Mas.' 'S.M. 76' ♂ 20.0mm.

Hyastenus diacanthus (de Haan, 1839)
♀ 50.0mm not inscribed.

Leucosia craniolaris (Linnaeus, 1767)
♂ 27.0mm; inscribed only with 'mas' and 'F'.

Neodorippe callida (Fabricius, 1793)
♀ 15.0mm; labelled '*Cancer astutus*' 'F', redet. by R. B. Manning.

Leach and Montagu specimens

A number of these specimens have an associated small label with a thick black margin. All bear the words *Mus. Leach* with additional brief locality details and donor. The identical handwriting on all these labels has not been identified.

Acanthonyx lunulatus (Risso, 1816)
[*Acanthonyx lunulatus*: White, 1847:11]
White (1847) lists specimens **a-c** from Sicily, Leach collection and **d, e** from Nice.

Extant Leach material, registration no. **380**, comprise: **b** ♀ 15.0mm; **c** ♂ 19.0mm (with *Mus. Leach* label attached); **d** ♀ 17.0mm (with *Mus. Leach* label) **e** ♂ 25.0mm. For a the label is present but not the specimen and there are two additional specimens bearing a label inscribed 'Sicily'—♀ 11.0mm & ♂ 15.0mm, both without numbers.

Achaeus cranchii Leach, 1817b

[*Achaeus cranchii* Leach, 1817*b*: text to & Tab XXIIc; White, 1847: 2]

Leach (1817b) cited a single female from Falmouth obtained by J. Cranch, White (1847) lists specimen a from . . . *Falmouth Bay. From Mr Cranch's collection.*

The extant specimen, registration no. **246**, is the ♀ holotype, 9.5mm

Aethra scruposa (Linnaeus, 1764)

[*Oethra scruposa:* White, 1847: 13]

White (1847) lists specimens **a** & **b** from Isle of France, Leach collection.

Extant material, registered as no. **35**, comprise: **a** ♂ 31.0mm; **b** ♂ 60.0mm.

Aratus pisonii (H. Milne Edwards, 1837)

[*Sesarma pisonii*: White, 1847: 38]

White (1847) lists specimen **a** from Jamaica, Leach collection. This is a ♀ 25.0mm, registered as no. **356**.

Arcania erinaceus (Fabricius, 1798)

[*Arcania erinaceus*: Leach, 1817*a*: 24; White, 1847: 50]

Leach (1817) cites . . . *oceano Indico* . . . and White (1847) lists specimens **a** & **b** from the Indian Ocean

Extant material, registered as no. **90**, comprise: **a** ♂ 20.0mm; **b** ♀ 19.0mm.

Arcania septemspinosa (Fabricius, 1798)

[*Iphis septemspinosa:* Leach, 1817*a*: 25; White, 1847: 51]

Leach (1817*a*) cites . . . *mari Indico* . . . and White (1847) lists specimens **b** & **c** from the Leach collection but without locality.

Extant material, registered as no. **525**, comprise: **b** ?♂ 18.5mm and **c** ?♀ 25.0mm.

Atelecyclus rotundatus (Olivi, 1792)

[*Atelecyclus septemdentatus* Leach, 1814*a*: 430; White, 1847: 51; *Atelecyclus Hippa septemdentatus* Montagu, 1813: 1, Tab.1, fig. 1; *Atelecyclus heterodon* Leach, 1815*b*: text to & Tab. 11]

Leach (1814) cites . . . *S. coast of Devon* . . . (Montagu collected), and . . . *Kingsbridge* . . . (Cranch collected); he also examined a young female from Bell Rock received from Stevenson. Leach (1815*b*) also mentions specimens from Prideaux. White (1847) lists specimens **a-e** young from Bell Rock, Scotland, **f-k** Devon, from Montagu & Leach collection. Among this latter material is a ♂ measuring one and one quarter inches in diameter (33.30mm). Although unlabelled, this specimen is of the size mentioned by Montagu (1813) and may be the specimen figured in Tab 1, fig. 1.

Extant material (in addition to the male mentioned above) is registered as no. **225** and comprise: **a** juv. 3.0mm; **b** juv. 2.5mm; **c** juv. 2.3mm; **e** juv. 7.0mm all from Bell Rock, Scotland and presented by Stevenson; **f** ♂ 24mm; **g** ♂ 29mm; **j** ♀ 28mm; **k** ♀ 22mm all from Devon.

Atelecyclus undecimdentatus (Herbst, 1783)

[*Atelecyclus olivii* Leach MSS; *Atelecyclus rotundatus* White, 1847: 51]

White (1847) lists specimens from the Mediterranean as **a, b** males, and **c, d** females all from Leach collection. Three females and three males from this locality, but unlettered, are present in the Dry Collection. These are probably the specimens listed by White.

Extant material, registered as no. **10**, comprise: 3♀♀ 25.0mm., 29.0mm., 34.0mm; 3♂♂ 26.0mm., 31.0mm., 34.0mm

Atergatis roseus Rüppell 1830

[*Atergatis roseus:* White, 1847: 14]

White (1847) lists specimens **a** & **b** from the Red Sea, Leach collection.

Extant material, registered as no. **582**, purchased at Steven's sale, comprise: **a** ♂ 20.0mm; **b** ♂ 40.0mm.

Bathynectes longipes (Risso, 1816)

[*Portunus longipes*: White, 1847: 26; Leach, 1875, text to and Tab IXA]

White (1847) lists specimens **a** & **b** from Nice, presented by M. Desmarest and in the register Leach's name is inserted against this entry. Leach (1875) cites . . . *Mediterranean* . . . as a locality and also remarks . . . *tardly discovered as an inhabitant of our shores.* . . . The specimens, from Nice donated by Desmarest, registered as no. **425**, comprise: **a** ♂ 14.5mm; **h** ♀ 17.0mm

Brachynotus sextendatus (Risso, 1826)

[*Spinola & Shurebus genoensis* Leach MSS; *Brachynotus sextendatus*, White, 1847: 40]
White (1847) lists specimens **a-d** from Genoa, Leach collection. These specimens, registered as no. **453**, but without attached letters, comprise: ♂ 12.0mm; 2♀♀ 12.0mm (with a nearby label inscribed '*Shurebus genoensis* Leach'); ♀ 10.0mm.

Calappa calappa (Linnaeus, 1758)

[*Camara calappa*: White, 1847: 44]
White (1847) lists specimen **a** from Isle of France, Leach collection.

This is represented by a ♂ 79.0mm, registered as no. **38a**.

Callinectes gladiator Benedict, 1893

[*Lupa* (part) Leach, 1818:413; *Lupa smythiana* Leach MSS; *Neptunus sanguinolentus*: White, 1847: 27; *Callinectes gladiator*: Rathbun, 1897: 150; Monod, 1970: 66]

Leach (1818) cites '. . . *three new species* . . .'; White (1847) lists specimens **d, e** from West coast of Africa (Congo Expedition).

Extant material, all without registration numbers, comprise: ♂ 14.0mm (in Alcohol Collection), ♀ 27.0mm (in Dry Collection). The dry specimen bears a *Mus. Leach* label inscribed 'Congo Expedition, J. Cranch' and another in Rathbun's handwriting '*Callinectes larvatus* Ord. probably= *Neptunus marginatus* A. M. Edw.' These specimens were redetermined as *C. gladiator* by A. B. Williams along with a third specimen, a juv. 15.0mm which has an adjacent label inscribed '*smythiana* Leach 22'. This number has 'Conge Expedition. J. Cranch', entered against it in the register.

Cancer pagurus Linnaeus, 1758

[*Cancer pagurus:* Leach, 1814*a*: 391; White, 1847: 20]
Leach (1814) does not cite particular localities in any of his publications. White (1847) lists specimens **a-k** from Britain, Montagu & Leach Collections.

Extant material, registered as no. **31**, comprise: **a** ♂ 4.5mm; **c** ♂ 6.0mm; **e** ♂ 23.5mm; **h** ♂ 14.5mm. A small unlabelled male of 6.0mm among this material may represent **h**.

Carcinus maenas (Linnaeus, 1758)

[*Carcinus maenas:* Leach, 1814*a*: 390; Leach, 1816*a*, text to & Tab. V; White, 1847: 23]
Leach (1814*a*) does not cite specific material, localities or donors. White, (1847) lists specimens **a-s** from Sandgate, Kent but without additional information. Leach collected at or near Sandgate and these specimens are almost certainly part of the Leach material. They are juveniles and sexes have not been determined.

Extant material, registered as no. **12**, comprise: **a** 2.0mm; **b** 3.0mm; **c** 4.0mm; **d** 5.0mm; **e** 4.5mm; **f** 7.0mm; **g** 9.0mm; **h** 9.0mm; **i** 10.0mm; ; **k** 13.0mm; **l** 6.0mm; **m** 11.0mm; **n** 14.0mm; **o** 18.0mm; **p** 16mm.

Corystes cassivelaunus (Pennant, 1777)

[*Cancer cassivelaunus* Pennant, 1777: 6, Tab. 7; Leach, 1814*a*: 395; Leach, 1815*b*, text to & Tab. I; White, 1847:52]
Pennant (1777) cites . . . *Holyhead and Red Wharf* . . ., Anglesey as localities. His material is no longer extant. Leach (1814*a*) does not mention a locality for the British Isles nor donors or collectors. White (1847: 53) gives . . . *England* . . . as the locality and lists specimens **a & h** from Montagu and **c & d** from Montagu & Leach Collection.

Extant material, registered as no. **8**, comprise: **a** ♂ 17mm; **b** ♂ 21mm; **c** ♂ 26mm; **f** ♀ 32mm; **g** ♀ 20mm; **h** ♀ 24mm.

Doclea rissonii Leach 1815a

[*Doclea rissonii* Leach, 1815*a*: 42, Pl. 47; White, 1847: 3; Wagner, 1986: 904]
Leach (1815*a*) does not give a locality. White (1847) lists specimen **a** from the Leach collection. This is the holotype ♀ 36.0mm, registered as no. **81**.

Dromia personatus (Linnaeus, 1758)

[*Dromia mediterranea* Anon, 1825: 419; Leach, 1875, text to & Tab. XXIVA; *Dromia vulgaris*-White, 1847: 55; White, 1850: 23]

The specimen from Billingsgate market (see Anon, 1825), and the one from Penzance (see Leach, 1875), are no longer in the Collections. The absence of the first mentioned had been noted by Miers during 1874 as a pencilled entry inscribed in the NHM Crustacea Section's copy of White's 1850 *List of the Specimens of British Animals*. White (1847) lists the Leach specimens as **a-c**, Mediterranean.

Only two of these have been found among the present material, they are registered as no. **65** and comprise: **b** ♂ 37.0mm; **c** ♂ 60.0mm. A ♂ 32.00mm has an adjacent *Mus. Leach* label inscribed 'Dromia mediterranea Mediterranean Sea W. Swainson Esq. Dr. Shuter . . . ' This also bears a label written by Isabella Gordon in 1954 designating the specimen as the type of *D. mediterranea*; it is registered as no 67.

Dromidia hirsutissima (Lamarck, 1818)

[*Dromia hirsutissima:* White, 1847: 55]

White (1847) lists specimens **a-c** from Cape of Good Hope, Leach Collection.

Extant material, registered as no. **66**, comprise: **a** ♂ 29.0mm; **b** ♀ 32.0mm; **c** ♂ 17.0mm. This last specimen has an associated *Mus. Leach* label inscribed 'Dromia hirsutissima Cape of Good Hope . . .'

Ebalia cranchii Leach, 1817b

[*Ebalia cranchii* Leach, 1817*b*: Text to & Tab. XXV, figs 7–11; Leach 1817*a*: 20; White, 1847: 49; Forest & Gordon, 1968: 329; Christiansen, 1969: 31]

Leach (1817) gives Plymouth, Cranch collected and Sound of Plymouth, Prideaux collected and who . . . *has supplied my collection with a complete series*. White (1847) lists specimens **a-k** from Leach and Montagu collections.

Extant material, registered as no. **250**, comprise: **c** ♂ juv. 5.0mm; **d** ♂ juv. 4.0m; **e** ♂ 10.0mm; **f** ♂ 11.0mm; **g** ♂ 11.0mm (lectotype selected by Forest & Gordon, 1968); **h** ♂ 12.50mm; **j** ♀ 7.50mm; **k** ♀ 10.0mm (all labelled paralectotypes).

Ebalia tuberosa (Pennant, 1777)

[*Cancer tuberosus* Pennant, 1373: 8, Pl. 9A, fig. 19; *Ebalia pennantii* Leach, 1817*b*: text to & Tab. XXV, figs 1–6; Leach, 1817*a*: 19; *Ebalia tuberosa*: White, 1847: 50]

Although Pennant (1777) does not give a locality, his specimen came from the Portland cabinet and therefore probably from Weymouth. Leach (1817) cites . . . *off the Dentridge, near the Saltstone, in the Estuary of Kingsbridge* . . . as the source of his material and White (1847) lists specimens **a-k** from Kingsbridge, Leach & Montagu collections.

Extant material, all now transferred from the Dry to Alcohol Collection, registered as no. **249**, comprise: **a** ♂ 3.0mm; **b** ♂ 3.0mm; **c** ♂ 3.50mm; **d** ♂ 4.50mm; **e** ♀ 7.0mm; **f** ♂ 9.0mm; **g** ♂ 10.0mm; **h** ♂ 11.0mm; **j** ♀ 13.0mm; **k** ♀ 14.0mm.

Ebalia tumefacta (Montagu, 1808)

[*Cancer tumefactus* Montagu, 1808: 86; *Ebalia bryerii* Leach, 1817*b*: text to & Tab. XXV, figs 12–13; Leach, 1817*a*: 20; *Ebalia tumefacta*: White, 1847: 49; Forest & Gordon, 1968: 335; Christiansen, 1969: 29]

Montagu (1808) gives Weymouth, collected by Mr Bryer as the source of his *C.tumefactus* material. Leach (1817*b*) cites . . . *Sound of Plymouth* . . . for his specimens of *E.bryerii*, obtained from Prideaux. White (1847) lists as *E.tumefacta* specimens **a-k** from Plymouth Sound, Leach & Montagu collections.

Extant material, comprise three specimens from Weymouth, registered as no. **251**, all now transferred from the Dry to the Alcohol Collection: **a** ♂ 10.0mm; **b** ♀ 8.0mm (labelled paralectotypes); **c** ♀ 12.0mm (labelled lectotype by Gordon & Forest in 1961). There is also a ♀ 11.0mm labelled by White 'Plymouth Sound 251' but unlettered. Only specimens **a-c** are entered in the register.

Elamena mathaei (Desmarest, 1825)

[*Hymenosoma mirabile* Leach MSS; *Elamena mathaei*: White, 1847: 33]

White (1847) lists specimen a Isle of France, M. Matthieu collection. This specimen, registered as no. **483**, is a ♂ 7.50mm.

Eurynome aspera (Pennant, 1777)

[*Cancer asper* Pennant, 1777: 18, Pl. IX A. 20; *Eurynome aspera* Leach, 1814*a*: 431; Leach, 1815*b*: text to and Tab. XVII; White, 1847: 11]

Pennant (1777) does not mention a locality. Leach (1815*b*) lists Dorset, Devon and Cornwall and also specimens from Plymouth Sound sent to him by Prideaux. White (1847) lists specimens **a-g** from Plymouth Sound and **h-o**; he also noted specimen **h** as the one figured by Leach on Tab. XVII, as fig. 3. Specimen **a** was destroyed according to a note in the register by E. J. Miers.

Extant material, registered as no. **240** comprise: **b** ♂ 6.5mm; **c** ♂ 6.5mm; **d** ♂ 12.5mm; **e** ♂ 11.5mm; **g** ♂ 23mm; **h** ♀ 18mm; **i** ♀ 18mm; **k** ♀ 15mm; **l** ♀ 14.5mm; **m** ♀ 10mm; **n** ♀ 8.5mm; **o** ♀, 8.0mm.

Gecarcinus ruricola (Linnaeus, 1758)

[*Gecarcinus ruricola* Leach, 1815: 322; White, 1847: 32]

White (1847) lists specimens **a-d** from Jamaica. These may have been the specimens cited by Leach (1815), obtained from Banks.

A ♂ 57.0mm in the Dry Collection has nearby labels inscribed 'ruricola Leach 4' and 'Jamaica' but there is no additional information. However, next to this is another male measuring 51.0mm and bearing indecipherable numbers or letters on the carapace. This may be the Banksian rather than the registered specimen.

Goneplax angulata Pennant, 1777

[*Cancer angulatus* Pennant, 1777: 7, Pl. 5, fig. 10; *Ocypode angulata* Leach, 1814a: 393; *Goneplax angulata* Leach, 1814a: 430; *Goneplax bispinosa* Leach, 1815: 323; Leach, 1816a: text to & Tab. XIII; *Gonoplax angulata* White, 1847: 37]

Pennant (1777) gives Weymouth as the locality. Leach (1814a) cites material from . . . *Salcombe Bay, Devonshire* . . . collected by Montagu and later (Leach, 1816a text to Tab. XIII) from . . . *Kingsbridge estuary, Devon and Sound of Plymouth* . . . He also mentions specimens collected by Prideaux and Cranch. White (1847) lists specimens **a-g** from Plymouth Sound, Montagu & Leach collections and **h-j** as . . . *male and female (var.)* . . . but without additional information.

Extant material, registered as no. **54**, comprise: **a** ♂ 14mm; **b** ♂ 15mm; **c** ♂ 20mm; **d** ♂ 22mm; **f** ♂ 24mm; **g** ♀ 16mm; **h-j** varieties are without additional information, they are not listed here.

Goniopsis cruentata (Latreille, 1803)

[*Goniopsis ruricola* White, 1847: 40]

White (1847) lists specimen a from Brazil- Leach collection, and **b**, **c**- presented by Lord Stuart de Rothesay.

A ♂ 43.0mm, registered as no. **455a** is probably the Leach specimen; **b** and **c** have not been found.

Hepatus princeps (Herbst, 1785)

[*Hapatus angustatus*, White, 1847: 46]

White (1847) lists as Leach collection specimens **c-e**, from S. America.

Extant material, registered as no. **33**, comprise: **c** ♂ 55.0mm; **d** ♀ 45.0mm.

Homola barbata (Fabricius, 1793)

[*Homola spinifrons* Leach, 1815: 324; Leach, 1815*a*: 82, fig. 88; *Homola barbata*, White, 1847: 55]

Leach (1815, 1815*a*) cites . . . *British Museum* . . . but without a locality. White (1847) lists specimen **a**, **b**, Bay of Naples, presented by Wm. Swainson.

Two specimens in the Dry Collection have an associated *Mus. Leach* label inscribed '*Thelxiope spinifrons* Bay of Naples, W. Swainson Esq . . .'. These are registered as no. **68** and comprise: **a** ♀ 32.0mm; **b** ♀ 31.0mm.

Hyas araneus (Linnaeus, 1758)

[*Maia araneus* Leach, 1814*a*: 394; *Hyas araneus* Leach, 1814*a*: 431; 1815: 328; Leach, 1816*a*: text to & Tab. XXIA; White, 1847: 5]

Leach (1814) gives European Seas as the locality and (Leach, 1815) . . . *mari Scotico vulgatissime, in mari Angliae rarior* . . . and later (Leach, 1816a) lists . . . *Scotland* . . . (near Montrose observed by Mr. Milne), . . . *Kent* . . . (near Sandgate, collected by himself) and . . . *Devonshire* . . . (rare).

White (1847) cites ... *Britain* ... for specimens **a-k** but without additional information. The register entry for no. 241 **a-f** & **g-k** is given as *coasts of Scotland and Kent*. These are probably Leach specimens but it is not possible to assign any to particular localities.

Extant material, registered as no. **241** comprise: **a** ♂ 14.0mm; **b** ♂ 25.5mm; **c** ♂ 33.5mm; **d** ♂ 42.0mm; **h** ♀ 33.0mm; **j** ♀ 26.0mm; **k** ♀ 18.5mm.

Hyas coarctatus Leach, 1815

[*Hyas coarctatus* Leach, 1815: 329; Leach, 1816*a*: text to & Tab. XXIB; White, 1847: 6; Christiansen, 1969: 118]
Leach (1815) cites ... *Frith of Forth, Plymouth Sound et Salcombe* ... as localities and later (Leach, 1816*a*) ... *Firth of Forth* ..., southern coast of Devon and near Sandgate Kent. White (1847) lists specimens **a-p** from Frith of Forth, Devon & Kent. All the present material is incorporated collectively under these localities.

Extant material, registered as no. **242**, comprise: **a** juv. 4.0mm; **b** ?♀ 6.5mm; **c** ?♀ 9.0mm; **d** ♂ 13.5mm; **e** ♂ 28.0mm; **f** ♂ 20.0mm; **g** ♀ 20.5mm; **h** ♀ 31.5mm (designated as lectotype by I. Gordon); **i** ♀ 27.0mm; **k** ♀ 24.0mm; **l** ♀ 12.5mm; **m** juv. 3.50mm; **n** juv. 4.50mm; **o** juv. 4.5mm; **p** juv. 6.0mm.

Ilia nucleus (Linnaeus, 1758)

[*Ilia nucleus* Leach, 1817*a*: 24; White, 1847: 49]
Leach (1817) gives Mediterranean as the locality of his material. White (1847) lists specimens **b & c** from that region.

Only one specimen, ♂ 25.0mm inscribed '87c' on its sternum, can be identified as a Leach specimen.

Inachus dorsettensis (Pennant, 1777)

[*Cancer dorsettensis* Pennant, 1777: 8, Pl. 9A, fig. 18; *Inachus dorsettensis* Leach 1814a: 431; Leach, 1817b: text to & Tab. XXII, figs 1-6; White, 1847: 2]
Pennant (1777) gaves Weymouth as the locality. Leach (1814a) cites ... *western coasts of England* ... and later (Leach, 1817b) ... *Devonshire coasts* ... but without additional information. White (1847) lists specimens **a-h** from Devon, Montagu collection, and **j-l** carapaces, Leach collection.

Extant specimens, registered as no. **243**, comprise: **a** juv. 5.2mm; **b** ♂ 14.0mm; **c** ♂ 12.0mm; **d** ♂ 27.0mm; **e** ♀ 17.0mm; **f** ♀ 19.0mm; **g** ♀ 22.0mm; **h** ♀ 24.0mm.

Inachus leptochirus Leach, 1817

[*Inachus leptochirus* Leach, 1817*b*: text to and Tab. XXIIB; White, 1847: 3]
Leach (1817*b*) cites ... *western coast of Devon or Cornwall* ... (Cranch collected) and ... *Bigbury Bay* ... (Prideaux collected) as localities but White (1847) list specimens **a-c** from Devon, collection of Col. Montagu. The register entry is given as **a-b** W. coast of Devon or Cornwall; **c-f** are without locality entries.

Extant material, registered as no. 245, comprise: **a** ♂ 39.5mm (lectotype selected by I. Gordon); **b** ♂ 21.0mm; **c** ♀ 21.0mm.

Inachus phalangium (Fabricius, 1775)

[*Inachus dorynchus* Leach, 1814*a*: 431; Leach, 1817b: text to & Tab XXII, figs 7 & 8; *Inachus dorhynchus* White, 1847: 3]
Leach (1814a) cites ... *Kingsbridge Estuary* ... (Prideaux and Cranch collected). White (1847) lists specimens **a-f** Devon, Leach's collection. The register entry is given as Devon (Salcombe Estuary).

Extant material, registered as no. **244** comprise: **a** ♂ 11.5mm: **c** ♂ 12.0mm; **d** ?♂ 5.0mm; **e** ♂ 22mm; **f** ♂ 21.0mm.

Ixa cylindricus (Fabricius, 1777)

[*Ixa cylindrus* Leach, 1815: 334; *Ixa canaliculata* Leach, 1817*a*: 26; *Ixa cylindrica*, White, 1847: 50]
Leach (1815, 1817*a*) cites ... *mari Indico* ... as the locality and White (1847) lists specimen a from India but without additional information. A ♀ 17.0mm, registered as no. **91a**, Indian Ocean, may represent the Leach specimen.

Ixa inermis Leach, 1817*a*

[*Ixa inermis* Leach, 1817*a*: 26 fig. 129, 2; White, 1847: 50]

Leach (1817*a*) states . . . *Communicavit Dom. Dufresne* . . . and White (1847) mentions specimen **a** from the Leach collection, but without additional information.

A ♂ 20.0mm, inscribed with registration no. **94a**, corresponds exactly in size with Leach's figure and is considered the holotype.

Leucosia craniolaris (Linnaeus, 1767)

[*Leucosia craniolaris*, Leach, 1817*a*: 21; White, 1847: 48]

Leach (1817*a*) cites a male from . . . *Indiae mari* . . . in . . . *Mus. Linn. Soc.*. White (1847) lists specimens **a,b** from Tranquebar. A ♂ 21.0mm, registered as no. **85** may represent the Leach specimen.

Leucosia anatum (Herbst, 1801)

[*Leucosia urania* Leach, 1817*a*: 21; White, 1847: 48]

Leach (1817*a*) cites a female from . . . *Oceano Indico* . . . in . . . *Mus. Britain. Soc. Linn* . . . donated by . . . *Hardwicke*. White, 1847 lists specimen **a** male and **b** female from the East Indies. Both are registered as no. **86.** The Leach specimen is probably **b**, (a ♀ 32.0mm).

Libinia emarginata Leach

[*Libinia emarginata* Leach, 1815*a*: 130; White, 1847: 4]

Leach (1815*a*) states . . . *there is a very fine specimen preserved in the British Museum*. This is listed as **a** by White (1847). It is a ♂ 68.0mm, registered as no. **316** and must be considered the holotype.

Liocarcinus arcuatus Leach, 1814*a*

[*Portunus arcuatus* Leach, 1814*a*: 390; Leach, 1816*a*: text to & Tab. VII, (not VIII) figs 1–2 ; *Portunus emarginatus* Leach, 1814*a*: 390; Leach, 1816*a*: Tab. VII, figs 3–4; *Portunus rondeletii* White, 1847: 25]

Leach (1814*a*) cites, for *Portunus arcuatus*, a male from . . . *Mus. Sowerby, Leach. The female has not occurred* . . . and later (Leach, 1816*a*) . . . *northern and western coasts of England* . . . The Sowerby specimen has not been found among the Leach material. For *P. emarginatus* the locality . . . *Torcross* . . . is cited by Leach (1814*a*) and later (Leach, 1816*a*) . . . *South-Western coast of Devon* . . . for specimens received from Mr Gibbs. White (1847) lists specimen **a** from Nice, Desmarest presented, **b** from Sicily, and **e** from S.W. coast of Devon. All these are Leach specimens according to the register.

Extant specimens, registered as no. **424** comprise: a ♀ 15.5mm from Nice, donated by Desmarest; **b** ♂ 24.5mm from Sicily donated by Swainson. The locality label for *P.emarginatus* Leach reads 'S.W. coast of Devon'. This is probably the specimen donated by Gibbs. It is registered as no. **230 e** and is a ♀ 26.5mm.

Liocarcinus corrugatus (Pennant, 1777)

[*Cancer corrugatus* Pennant, 1777: 5. Pl. 5, fig.9; *Portunus corrugatus* Leach, 1814*a*: 390; Leach, 1815: 315; Leach, 1816*a*: text to Tab. VII (not VIII) figs 1–2; White, 1847: 25]

Pennant (1777) cites . . . *Skie, opposite to Loch Jurn* . . . as the locality. Leach (1814) mentions specimens from . . . *Mus. Montagu* . . . but without additional information and later (Leach, 1815 & 1816*a*) from . . . *Plymouth Sound* . . . (Prideaux collected). White (1847) lists specimens **a–c** from Plymouth Sound, Montagu collection.

Only a ♂ 34.5mm from 'Mus. Montagu', registered as no. **17c** is extant.

Liocarcinus depurator (Linnaeus, 1758)

[*Cancer depurator* & var. A Pennant, 1777: 4, Pl. IV, fig. A VI; *Portunus depurator* Leach 1814*a*: 390; Leach, 1816*a*, text to & Tab. IX, figs 1,2; White, 1847: 24.]

Pennant (1777) does not give a locality for his material. Leach (1814) cites . . . *European ocean and all shores of Great Britain* . . . and later (Leach, 1816*a*) . . . *British coast.* . . . White (1847) lists specimens **a–f** young, Britain, Montagu and Leach collections.

A small female 18.0mm labelled 'C.depurator.A' is present in the Pennant collection and may be the specimen depicted in his Pl. IV, fig. A VI. The six small specimens cited by White from Britain are all juvenile *L.holsatus*, (redetermined by Palmer, *circa* 1926. These are registered as no. **18.**

are all very juvenile and represented by specimens: a 7.5mm; **b** 10.0mm; c 11.5mm; **d** 10.5mm; **e** 9.5mm; **f** 12.5mm.

Liocarcinus holsatus (Fabricius, 1798)

[*Cancer depurator* Pennant, 1777: 4, Pl. II, fig. 6; *Portunus lividus* Leach, 1814*a*: 390; Leach, 1815: 317; Leach 1816*a*: text to & Tab. IX, figs 3–4; White, 1847: 25]

Two males, measuring 30.0mm and 33.0mm respectively are present in the Pennant collection. The smallest is labelled 'C.depurator' and may be the specimen depicted by Pennant (1777). Leach (1814*a*) cites a specimen collected at . . . *Newhaven* . . . (Firth of Forth). He also found one among *depurator* specimens from this locality and saw another in the collections of Montagu. White (1847) lists specimens **a–d** from Sandgate, Montagu collection and **e** Firth of Forth (Newhaven).

Extant material, registered as no. **226**, comprise: **b** ♂ 29.0mm; **c** ♀ 20.0mm both from Sandgate; **e** ♂ 38.5mm, Newhaven, Firth of Forth.

Liocarcinus marmoreus (Leach, 1814)

[*Portunus marmoreus* Leach, 1814*a*: 390; Leach, 1815: 317; Leach, 1815*b*: text to & Tab. VIII; White, 1847: 25; *Liocarcinus marmoreus*: Christiansen, 1969: 60]

Leach (1814*a*) gives the locality as Torcross, Devon (discovered by Montagu) and later (Leach, 1815*b*) cites . . . *Southern coast of Devon, from Torcross to the mouth of the river Ex* . . . White (1847) lists specimens **a–e** Falmouth and **b–g** South coast of Devon from Montagu & Leach collections. It is uncertain whether or not the Falmouth specimens are part of the Leach collection and it is not possible to assign existing specimens to the specific localities mentioned by Leach.

Extant material, registered as no. **227**, comprise: **c** ♂ 24.5mm; **d** ♂ 28.5mm; **f** ♀ 25.0mm (lectotype selected by I. Gordon, see Christiansen, 1969) **g** ♀ 18.0mm.

Liocarcinus pusillus (Leach, 1815)

[*Portunus pusillus* Leach, 1815: 318; Leach, 1816*a*: text to & Tab. IX, figs 5–8; White, 1847: 26; *Macropipus pusillus*: Christiansen, 1969: 58]

Leach (1815) cites . . . *Danmoniae Australis* . . . (= south of The Lizard) and . . . *Frith of Forth* . . . (Scotland) and later (Leach, 1816*a*) . . . *some parts of southern coast of Devon* . . . White (1847) lists these localities for specimens he designated **a–f** from Montagu & Leach collections.

Extant material, registered as no. **228**, comprise: Firth of Forth **b** ♂ 6.0mm. South coast of Devon **c** ♂ 7.5mm; **d** ♀ 10.5mm **e** ♂ 10.5mm. White also lists **g–n** without additional information but which are presumably also from one or both of the above mentioned localities. These now comprise: **g** ♀ 14.0mm; **h** ♀ 13.0mm (lectotype, selected by I. Gordon, 1968: 320, now in the Alcohol Collection); **j** ♀ 12.0mm; **k** ♀ 11.0mm; **l** ♀ 8.5mm; **m** ♀ 9.0mm; **n** ♀ 10.0mm.

Lissa chiragra (Fabricius, 1775)

[*Lissa chiragra* Leach 1815*a*; 70, Pl. 83; White, 1847: 5]

Leach 1815*a*) cites . . . *Mari Mediterraneo* . . . as the locality of his material and also . . . *said to have been taken on coast of Cornwall by Mr. Swainson*. White (1847) lists specimens **a** & **b** from the Mediterranean without additional information; these must be the Leach specimens.

Extant material, registered as no. **72**, comprises: **a** ♂ 34.0mm; **b** ♀ 40.0mm.

Lupella forceps (Fabricius, 1793)

[*Lupa forceps* Leach, 1814: 123; Leach 1815: 319; Leach, 1816: 411; White, 1847: 28]

Leach (1814) states . . . *Dr P. Browne has given a good figure of this animal in tab 42, fig.2 of his History of Jamaica, from which island the specimen here figured, was received*. A specimen labelled 'S. America' and registered as no. **29** is the only one contemporary with White's period but there is no additional information to suggest that this represents the Leach specimen.

Macropipus rugosus (Doflein, 1904)

[*Portunus* (n.sp.) Leach, 1818: 413; Monod, 1970: 66]

Leach (1818) cites *Gulphe of Guinea*. This specimen, a ♂ 20.50mm., bears a black-edged label inscribed 'Portunus Gulphe of Guinea J. Cranch Congo Expedition'.

Macropodia tenuirostris (Leach, 1814*a*)

[*Leptopodia tenuirostris*: Leach, 1814a: 431; *Macropodia tenuirostris:* Leach, 1815: 331; Leach, 1815*b*, text to & Tab. XXIII, figs 1–5; *Stenorhynchus tenuirostris* White, 1847: 2]

Leach (1814*a*) cites ... *Plymouth Sound* ... and later (Leach, 1815) ... *in Angliae occidentalis* ... but also (Leach, 1815b) states that he ... *first observed this species amongst some crustacea collected at Torquay, in Southern Devon, by Hooker* ... and also mentions Sound of Plymouth. White (1847) cites specimens **a-f** from Devon, Montagu collection and **l-q** as carapaces and forelegs respectively, without additional information.

Extant material, labelled collectively 'Devon' and registered as no. **247** comprise: **a** ♂ 14.5mm; **b** ♂ 15.0mm; **c** ♂ 21.0mm; **d** ♂ 6.0mm; **f** ♀ 12.5mm; **g** ♀ 12mm; **h** ♀ 14.5mm.

Maja squinado (Herbst, 1788)

[*Maia squinado:* Leach, 1814a: 394; *Maya squinado:* Leach, 1815: 326; Leach, 1817*b*: text to and Tab. XVIII; White, 1847: 8]

Leach (1814*a*) cites ... *Mediterranean Sea* ... as the locality, ... *Mari Angliae australi et occidentali* ... (Leach, 1815), and later (Leach, 1817b) ... *South Western coasts of Devon and Cornwall*. ... White (1847) lists specimens **b-h** as from S.W Coast of Devon but without additional information. These specimens may be those examined by Leach whereas the Mediterranean locality cited by Leach in (1814*a*) may relate to the specimens of *Maja verrucosa* listed by White as **d-f** from this locality.

Extant material of *M.squinado*, probably studied by Leach, registered as no. **78**, comprise: **c** ♂ 66.5mm; **e** ♀ 42.5mm; **f** ♀ 64.0mm; **g** ♀ 100.0mm; **h** ♀ 130.0mm.

Matuta lunaris (Forskal, 1775)

[*Matuta peronii* Leach, 1817*a*: 13; *Matuta lunaris* Leach, 1817*a*: 13; *Matuta banksii* Leach, 1817*a*: 14; *Matuta lesueurii* Leach, 1817*a*: 14;; *Matuta victor* White, 1847: 46]

Leach (1817*a*) cites ... *Isle of France* ... for his material of *M.lunaris*. White (1847) lists specimens **a** & **b** from this locality. These specimens have not been found among the *Matuta* material. Leach (1817*a*) gives Indian Ocean as the locality for his *M.peronii* material, and White (1847) lists these specimens as **d,e** under *M.victor*.

Specimens, originally in the Dry Collection, were labelled as follows. A ♀ 31.0mm bearing a small printed label inscribed 'India' and an additional label inscribed 'Peronii'. This is presumably one of the specimens cited by White as 'd,e'. There was also a nearby label inscribed 'Peronii Leach 472' but as the register entry for this number gives 'Isle of France', this label may have belonged to a specimen now missing. A ♂ 30.0mm had a label nearby reading 'lesueurii Leach 473'; the register gives New Holland for this number and Leach, 1814 cites ... *Australasiae mari* ... as the locality. However, this specimen has 'Pondicherry' written on the right fifth pereopod and therefore cannot be considered part of the material cited by Leach as *M.lesuerii*. Specimens of *M.banksii* have not been located. These specimens are currently being revised by Galil & Clark and all have been transferred to the Alcohol Collection.

Menaethius diadema Leach MS

[*Menaethius diadema* White, 1847: 10]

White (1847) lists specimen **a** from the Isle of France, Leach collection. A note in his handwriting in the NHM copy of his 1847 publication states ... *young female of last* (ie of his *M.subserratus* Adams & White, 1848: 18).

The extant specimen, an unregistered ♀ 10.0mm., bears a *Mus. Leach* label inscribed 'Blastia diadema'.

Menaethius monoceros (Latreille, 1825)

[*Menaethius porcellus* n.s White, 1847: 10; Adams & White, 1848: 16; *Menaethius tuberculatus* White, 1847: 10; Adams & White, 1848: 19]

White (1847) lists for *M.porcellus* specimens **a** & **b** from Isle of France, Leach collection, and also specimen **c** without additional information. For *M.tuberculatus* he lists specimen **a** also from Isle of France, Leach collection.

Extant material, labelled *M.porcellus*, registered as no. **365**, comprise: **a** ♂ 14.0mm; **b** ♂ 25.0mm; **c** ♂ 19.0mm. Specimen **b** has an attached *Mus. Leach* label inscribed 'Blastia monoceros' and also a label, in Miers handwriting, inscribed 'porcellus Wh. see register no 365'. The *M.tuberculatus* specimens is represented by a ♂ 16.0mm with an attached *Mus. Leach* label inscribed 'Blastia tuberculatus'.

Mictyris longicarpus Latreille, 1806
[*Myctiris longicarpus*, White, 1847: 34]
White (1847) lists specimens **a** & **b**, New Holland, Leach collection. These are registered as no. **439** and comprise: **a** ♀ 19.0mm; **b** ♀ 22.0mm.

Mursia cristimanus (de Haan, 1837)
[*Mursia cristata* Leach MSS; White, 1847: 45],
White (1847) lists specimen a from the Indian Ocean. In the NHM copy of this publication this locality has been amended to 'Africa'. Above the label 'cristimana' is a note by Isabella Gordon reading '(types) 4 specimens relaxed XII/38'. However, these have not been located among the alcohol preserved material.

Myra fugnax (Fabricius, 1798)
[*Myra fugnax* Leach, 1817*a*: 24, White, 1847: 49]
Leach (1817*a*) cites . . . *mari Indico* as the locality. White (1847) lists specimens **a** & **b** from Indian Ocean.

Extant material, registered as no. **92**, comprise: **a** ♂ 32.0mm; **b** ♂ 37.0mm.

Necora puber (Linnaeus, 1767)
[*Cancer velutinus* Pennant, 1777: 5, Pl IV, fig. 8 *Portunus puber*: Leach, 1814*a*: 390; Leach, 1815: 315; Leach, 1816*a*: text to and Tab. VI; White, 1847: 24]
A large male measuring 62.0mm labelled '*C.velutinus*', from the Pennant Collection,registered as 1912.12.31.1, is probably the specimen figured by Pennant (1777) who states that the species . . . *Inhabits the Western coast of Anglesey*. Leach (1814a) gives Devonshire as the British locality, . . . *oceano Europae* . . . (Leach, 1815) and . . . *South-Western coast of Devonshire* . . . (Leach, 1816*a*). White (1847) lists specimens **a-e** from S.W. coast of Devon, from Leach & Montagu collections, and **f** from Devon but without additional information.

Extant Leach material, labelled S.W. coast of Devon and registered as no. **19**, comprise: **a** juv. 6.50mm; **b**?♂ 10.50mm; **c** ♂ 21.0mm; **d** ♂ 40.0mm.

Neosarmatium meinerti (de Man, 1887)
[*Sesarma tetragonum* White, 1847: 38]
White (1847) lists specimen **a** from Isle of France, Leach collection. This ♀ 30.0mm, registered as no. **584d** bears a small printed label attached to the merus of the fifth left pereiopod inscribed 'Isle of France'. The accession number has been deleted in the register and the trivial name 'taeniolata n.s' substituted, presumably by White.

Ocypode cordimanus (Latreille, 1818)
[*Ocypode cursor* White, 1847: 35]
White (1847) lists specimens **a** & **b**, from Isle of France, Leach collection although only **a** is entered under no. **755** in the register.

Extant material comprise: ♂ 26.0mm, purchased at Steven's sale.

Oziothephusa ?senex senex (Fabricius, 1798)
[*Telphusa indica:* White, 1847: 30]
White (1847) lists specimens **a** & **b**, from Isle of France, Leach collection. A fragmented ♀ 25.0mm with an associated label inscribed 'Isle of France, Mathieu. Mus. Leach' but without a registration number is present in the Dry Collection and may be one of the two specimens cited by White; the other has not been located.

Pactolus boscii Leach, 1815a
[*Pactolus boscii* Leach, 1815*a*: 20, Pl. 68; *Leptopodia sagittaria* White, 1847: 1]
Leach (1815*a*) states . . . *locality unknown* . . . and White (1847) lists specimen **j**, remarking . . . *carapace of a female, with the legs of another crab artificially coloured* . . .

This specimen, a ♀ 40.0mm, is entered as no. **83** in the register and must be considered the holotype.

Parthenope horrida (Leach, 1814*a*)

[*Maia horrida* Leach, 1814*a*: 394; *Parthenope horrida* Leach, 1814*a*: 431; Leach, 1815*a*: 107, Tab. XCVIII; White, 1847: 12]

Leach does not cite specific material in his accounts but states . . . *Inhabits the Asiatic Ocean*. White (1847) lists specimens **a-d** from . . . *Isle of France* . . . and from the collection of M.Matthieu.

Extant material has an attached *Mus. Leach* label inscribed 'Isle of France. M.Mathieu . . .' and is represented by a ♀ 67.0mm registered as no. **69c**, and an unregistered ♂ 24.0mm; both must be considered syntypes.

Persephona lichtensteinii Leach, 1817*a*

[*Persephona lichtensteinii* Leach, 1817*a*: 23; White, 1847: 47]

Leach (1817*a*) cites one female in . . . *Mus. Brit* . . . White (1847) lists specimen **a** male and **b** female. The locality is unknown.

These two specimens, bearing an old registration number **97**, were transferred from the Dry to the Alcohol Collection and re-registered as **1939.9.20.8-9**. Because Leach cited a female only (26.0mm) this must be considered the holotype and the male (27.0mm) as a paratype.

Persephona punctata punctata (Linnaeus, 1758)

[*Persephona latreilli* Leach, 1817*a*: 22; *Persephona lamarckii* Leach, 1817*a*: 23; *Persephona latreillii* & *P. lamarckii* White, 1847: 47; *Persephona guaia* Bell, 1855; 292]

Leach (1817*a*) does not list a locality for *P.latreillii* but Bell (1855), using the name *guaia* for this material, mentions that it originated from the Sloane Collection and therefore from the West Indies. Leach's specimen of *P.lamarckii* came from Professor Lamarck. White (1847) lists, under *P.latreillii*, specimen **d** from Sloane's collection, and under *P.lamarckii*, specimen a presented by M. Lamarck.

A ♀ 42.0mm inscribed 'Sloane 2048' and with an associated label 'West Indies' must be the specimen cited as **d** by White (registered as **96d**); the specimen presented by Lamarck (registered as no. **96a**) is a ♂ 52.0mm.

Phalangipus indica (Leach, 1815*a*)

[*Egeria indica* Leach, 1815*a*: 40; White, 1847: 3]

Leach (1815*a*) cites . . . *habitat in oceano Indica* . . . and . . . *Mus. Societ. Linn. et Mus. Britann* . . . but without additional information. White (1847) lists a male from the Indian Ocean, presented by General Th. Hardwicke.

The Leach specimen has not been found.

Philyra globosa (Fabricius, 1798)

[*Philyra globosa*: Leach, 1817*a*: 22: White, 1847: 47]

Leach (1817*a*) cites . . . *Habitat in mari Indico* . . . and . . . *Mus.Linn.Soc., Nostre* ♂ ♀ . . . White (1847) cites . . . *Malabar* . . . as the locality for specimens **a & b** but without additional information.

A ♂ 19.0mm has a nearby label inscribed 'Indian Ocean 89' but there is no evidence that this is one of the Leach specimens. However, as Leach cites a male and a female in the Linnean Society Museum (specimens from which were acquired by the BM), two specimens in the Dry Collection, a ♂ 19.0mm and ♀ 22.0mm bearing printed labels inscribed 'Banks Coll.' but without further details, may be those cited by Leach.

Philyra scabriuscula (Fabricius, 1798)

[*Philyra scrabriuscula*:, Leach, 1817*a*: 22; White, 1847: 47]

Leach (1817*a*) cites a male and female from . . . *mari Indico* . . . in . . . *Mus. Soc. Linn* . . . White (1847) lists specimens **a-c** from the Indian Ocean without additional information

Extant specimens, registered as no. **88** comprise: **a** ♀ 10.0mm; **b** ♂ 9.50mm; **c** ♂ 12.0mm. The specimen **b** has the additional registration number **46b**, but this does not relate to this specimen. It is uncertain whether or not all are Leach specimens.

Phyllodorippe armata (Miers, 1881)

[*Dorippe* Leach, 1818:414; *Dorippe armata* (nomen nudum) White, 1847: 54; Monod, 1970: 66]

White (1847) lists specimen a Atlantic Ocean (Congo Expedition) and this ♂, 21.0mm was figured by Miers (1881*c*: 269).

Pilumnus hirtellus (Linnaeus, 1761)

[*Cancer hirtellus*: Pennant, 1777: 4, Pl IV, fig. 11; Leach, 1814*a*: 391; *Pilumnus hirtellus*: Leach, 1815: 321; Leach, 1816*a*: text to and Tab. XII; White, 1847: 21]
Leach (1814*a*) cites . . . *Devonshire* . . . as the locality and later (Leach, 1816a) south-western coast of Devonshire . . . *from Plymouth to Berry Head*. White (1847) lists specimens **a-d** from Devon and **e-l** England, all from Montagu & Leach Collections and specimen **o** from Devon but without additional information.

Extant material **a-d** labelled 'S.W. coast of Devonshire' and **e-l** labelled 'S. England', registered as no. **232** comprise: **a** juv. 2.0mm; **b** juv. 4.50mm; **c** juv. 5.0mm; **d** ♂ 6.0mm; **e** ♂ 9.0mm; **h** ♂ 15.0m; **i** ♀ 14mm; **j** ♀ 9.50mm; **k** ♀ 13.5mm Another ♂ 11.50mm is also labelled **b**.

Pinnotheres pinnotheres (Linnaeus, 1758)

[*Pinnotheres pinnae* Leach, 1814*a*: 431; *Pinnotheres veterum* Leach, 1815*b*: text to & Tab. XV, figs 1–5; *Pinnotheres montagui* Leach, 1815*b*: text to & Tab. XV figs 6–8]
Leach (1814a) cites . . . *Salcombe estuary* . . . (Montagu collected) for his *P.veterum* material, and he obtained additional specimens from Cranch. His specimens of *P.montagui* also came from Salcombe, collected by Montagu.

Extant material, registered as nos. **236** comprise: **a** ♂ 5.0mm; **b** ♀ 13.0mm; **c** ♀ 14.50mm (all *P.veterum*) and no.**237**, ♂ 6.0mm (*P.montagui*).

Pinnotheres pisum (Linnaeus, 1758)

[*?Cancer minutus* Pennant, 1777: 1; *Pinnotheres mytilorum*, *P.mytili* Leach, 1814*a*: 430; *Pinnotheres modioli* Leach, 1814*a*: 431; *Pinnotheres pisum*: Leach, 1814*a*: 394; Leach, 1815*b*: text to & Tab. XIV, figs 1–3; *Pinnotheres cranchii* Leach, 1815*b*: text to & Tab. XIV, figs 4, 5; Leach, 1816: 413; *Pinnotheres latreillii Leach, 1815b*: text to and Tab. XIV, figs 6–8; *Pinnotheres varians* Leach, 1814: 394 & 430; 1815a: text to & Tab. XIV, figs 9–11; *Pinnotheres pisum:* White, 1847: 32]
Leach (1814*a*, 1815*b*) does not mention localities for his *P.pisum* material. For *P.varians* he states that it is common in the . . . *Frith of Forth*. For *P.cranchii* he remarks that the species was . . . *discovered by Mr. J. Cranch in the Kingsbridge estuary* . . . *in Modioli & Mytili* . . . and he collected *P.latreillii* from the . . . *Frith of Forth*. White (1847) lists under *P.pisum*, specimens **a-g** Sandgate (*P.pisum*), **h-n** Sandgate (*P.varians*), **o** Firth of Forth (*P.latreillii*), all as Leach material.

Extant specimens, registered as no. **232**, comprise: **a** ♀ 4.50mm; **b** ♀ 4.50mm; **c** ♀ 7.50mm;; **d** ♀ 9.0mm; **f** ♀ 12.0mm; **g** ♀ 10.0mm (all *pisum*), **h** ♂ 4.0mm; **i** ♂ 5.0mm; **k** ♂ 6.0mm; **l** ♂ 6.50mm; **m** ♂ 7.0mm; **n** ♂ 8.0mm (all *P.varians*); **o** ♀ 4.0mm (*P.latreillii*).

Pirimela denticulata (Montagu, 1808)

[*Cancer denticulatus* Montagu, 1808: 87; Leach, 1814*a*: 391; *Pirimela denticulata* Leach, 1816*a*: text to & Tab. III; White, 1847: 22; 1850: 11]
Montagu's type locality is Sandwich coast (specimen obtained by Mr Boys). Leach (1814a) cites . . . *England and Scotland* . . . as localities and later (Leach, 1816*a*) lists additional localities Bantham, south coast of Devon (Prideaux collected), Torquay (Dr. Goodall collected). He also saw . . . *a specimen in the cabinet of Mr. Donoven, which I am assured, came from the coast of Scotland* . . . White (1847) cites specimens **a-d** from S. coast of Devon, **e-g** without localities, all from Montagu & Leach collections and **h** from Britain, Montagu Collection. However, White (1850) gives south coast of Devon and Kent for specimens **a-d**; the type locality occurs within the last mentioned county.

Of the extant material only specimen **c** can be identified as the one donated by Dr. Goodall. Specimen **h** to which only Montagu's name is accredited, although smaller than the size mentioned, was selected as the lectotype of the species by I. Gordon in 1968.

Extant specimens, registered as no. **13**, comprise: **a** juv. 3.0mm; **b** juv. 3.0mm; **c** juv. 3.50mm; **d** ♂ 6.0mm, all labelled South coast of Devon; **f** ♂ 9.50mm; **h** ♀ 8.50mm (lectotype). There is also a carapace 13.0mm labelled '**j** Scotland' (perhaps the Donovan specimen).

Pisa armata (Latreille, 1803)

[*Cancer biaculeatus* Montagu, 1813: 2; *Pisa biaculeata:* Leach, 1814: 431; *Pisa gibbsii* Leach, 1815: 327; Leach, 1815*b*: text to and Tab. XIX; *Arctopsis lanata* White, 1847: 5; *Arctopsis armata:* White, 1847: 5.]

Montagu (1813) does not list a specific locality although his single specimen was probably taken off the Devonshire coast. Leach (1815*b*) gives southern coasts of Devon and Cornwall as localities. White (1847) lists (as *A. lanata*) specimens **a-l** from these regions, (from Montagu & Leach collections), **m** & **n** from Jersey (not found among the present material but that were also Leach specimens according to the register), and (as *A. armata*) specimen **a** from Italy from the Leach Collection.

Extant material, registered as no. **73** comprise: **a** juv. 8.0mm; **b** ♂ 11.0mm; **c** ♂ 19.0mm; **d** ♂ 21.0mm; **e** ♂ 43.0mm; **f** ♂ 46.0mm; **h** ♀ 30.0mm; **j** ♀ 19.0mm; **k** ♀ 14.0mm; one unlabelled ♀ 45.0mm may represent **g** or **i**. All are labelled Devonshire coast. The specimen from Italy, is an unregistered ♂ 55.0mm.

Pisa corallina (Risso, 1816)

[*Pisa corallina* White, 1847: 4]

White (1847) lists specimens **a** from Nice, but without additional information, and **b** & **c** from Sicily, Leach collection.

Extant material, registered as no. **363**, comprise: **a** ♀ 25.0mm; **b** ♂ 42.0mm; **c** ♂ 23.0mm.

Pisa nodipes Leach, 1815*a*

[*Pisa nodipes* Leach, 1815*a*: 50, Pl. 78; White, 1847: 5]

Leach (1815*a*) does not mention a locality but White (1847) lists specimens **a-c** from Marseilles, as Leach specimens.

Extant material, (considered syntypes), registered as no. **74**, comprise: **a** ♂ 32.0mm; **b** ♀ 38.0mm, **c** ♀ 32.0mm. The last mentioned bears a *Mus. Leach* label inscribed 'Pisa nodipes Marseilles. Given by Dr Roux . . .' There is an additional ♀ 35.0mm nearby labelled 'Marseilles' but without further information.

Pisa tetraodon (Pennant, 1777)

[*Cancer tetraodon* Pennant, 1777: 7, Tab. VIII, fig. XV; *Pisa tetraodon* Leach, 1815: 328; *Blastus tetraodon* Leach, 1816: 431; *Pisa tetraodon* Leach, 1817*b*: text to and Tab. XX, figs 1, 2; White, 1847: 4.]

. . . *Angliae australi-occidentalis mari* . . . is cited by Leach (1815), . . . *south-west coast of England* . . . (Leach, 1816) and . . . *Isle of Wight* . . . (Pennant's locality) . . . *Brighton and Teignmouth* . . . (Leach, 1817*b*). White (1847) lists specimens **a-f** from S. of England, without additional information, and specimens **p-s** Tripoli, Leach Collection.

Extant material, labelled collectively 'South of England' and registered as no. **75** comprise: **a** ♂ 34.0mm; **b** ♂ 40.0mm; **c** ♂ 45.0mm; **d** ♀ 22.0mm; **e** ♀ 27.0mm; **f** ♀ 44.0mm. In the register it is stated that specimen **c** is the one figured by Leach (1817*b* Tab. XX, fig. 1) and specimen **f** as fig. 2. The Tripoli material is represented by four specimens, each with a small locality label but without a registration number; these comprise: ♀ 18.0mm; ♂ 26.0mm; ♂ 30.0mm; ♀ 16.0mm.

Plagusia depressa (Fabricius, 1775)

[*Plagusia squamosa:* White, 1847: 43]

White (1847) lists a male labelled **g** from Isle of France, Leach collection. A label in Adam White's handwriting inscribed '*Plagusia squamosa* Ocean, 466' is placed to the left of several dry specimens but cannot be satisfactorily assigned to any particular one. The register entry for this number (**466**) gives Isle of France.

Planes minutus (Linnaeus, 1758)

[*Grapsus minutus*: Leach, 1813: 414; *Planes linnaeana* Leach, 1875: text to & Tab. XXVII, figs 1–3; White, 1847: 41]

Leach (1818) cites this and a new species from the Gulf of Guinea and (Leach, 1875) . . . *Devon and Cornwall* . . . for material examined. White (1847) lists, for Leach material, specimens **a-c** from Devonshire?, and **d** a young female from South Atlantic.

Extant material, unregistered, comprise: 2♂♂ 13.0 & 14.0mm, from Gulf of Guinea (Congo Expedition); there are also 2♂♂, 10.0mm and 1♀ 8.0mm, with an associated label inscribed 'Received from Dr. Leach with a collection of Devonshire Insects but without the habitat. It appears to be the same as received from Mr Say from N. America under the name of *Grapsus pelagicus*' On the reverse side of this label Adam White has written- '*Planes linnai* Leach written with pencil on bottom of drawer'.

Podophthalmus vigil (Fabricius, 1798)

[*Podophthalmus vigil*: Leach, 1815*a*: 149; White, 1847: 29]

Leach (1815*a*) mentions that his specimen was obtained from Mr Mathieu, Isle of France. Although White (1847) lists this specimen as **a** from Isle of France, Leach collection, it has not been found.

Polybius henslowii Leach, 1820

[*Polybius henslowii* Leach, 1820: text to and Tab. IXB; White, 1847: 24; Christiansen, 1969: 68]

Leach (1820) cites localities ... *Northern coast of Devon* ... (Henslow collected), ... *off Bigbury Bay, in the South-Western coast of Devon* ... (Prideaux collected) ... *opposite Portland Island* ... (Goodall collected), ... *in the collection of the Linnean Society* ... *off coast of Spain* ... *Sir Joseph Banks*. White (1847) lists specimens **a-e** from S.W. coast of Devon, Leach and Montagu collections. There is no evidence that the latter had material of this species. The Banks specimen has not been found.

Extant specimens, registered as no. **231**, comprise: **a** ♂ 42.50mm (lectotype); **b** ♂ 42.50mm; **c** ♀ 37.0mm (paralectotypes) selected by I. Gordon.

Portumnus latipes (Pennant, 1777)

[*Cancer latipes* Pennant, 1777: 3, Pl. I, fig. 4; *Portumnus variegatus* Leach, 1814a: 391; Leach, 1815b: text to and Tab. IV; *Portumnus latipes*: White, 1847: 23]

A female 19.0mm, registered as 1912. 12.31.2 is labelled by W. T. Calman as the type and this may be the specimen figured by Pennant (1777, Pl. 1, fig. 4). It is one of the Pennant specimens received from the Earl of Denbigh in 1912. Leach (1814a) cites ... *Great Britain* ... and later (Leach, 1815*b*) ... *southern coast of Devonshire* ... (Prideaux collected). White (1847) lists specimens **a-e** from Devon, Montagu Collection and **f-h** young presented by Dr. Goodall (a collector from whom Leach occasionally obtained specimens).

Extant material, in addition to the holotype, registered as no. **14**, comprise: **b** ♂ 25.5mm; **c** ♀ 20.5mm; **d** ♀ 19.5mm; **e** ♀ 13.0mm

Portunus spinimanus Latreille, 1819

[*Lupa banksii* Leach, 1815: 319; *Achelous spinimanus*: White, 1847: 28]

Leach (1815) cites ... *Mus. Brit/ ex dono Josephi Banks* ... for his material. White (1847) lists specimens **c-e** from the West Indies and presented by Banks.

A ♀ 43.0mm has a label nearby inscribed '*Achelous spinimanus* Des. var/ *L.Banksii* Leach Jamaica' and with the registration number **920**. However, the register entry against this number reads 'a,b West Indies purchd. of Scrivener'. There is a note by Isabella Gordon in the Crustacea Section Library copy of White's 1847 publication to the effect that one of the **c-e** specimens listed by White was destroyed during the war and that a Banks collection label was found on fragements of one specimen. None of the Dry collection '*Achelous*' can now be identified as representing the Banks specimens listed by White.

Portunus validus Herklots, 1851

[*Lupa* (part) Leach, 1818: 413; *Lupa Cranchiana* Leach MS; *Neptunus sanguinolentus* (part), White, 1847: 27; *Portunus validus*: Monod, 1970: 66]

White (1847) lists the Leach specimens as **f-h** from W. coast of Africa (Congo Expedition). The extant specimen is an unregistered ♀ 29.0mm and now in the alcohol collection; a part of one copied label is inscribed 'On a floating Thalassiophyta Lat. 30°N. Long 36° Congo Expd.'

Sesarma (Chiromantes) cinereum (Bosc, 1802)

[*Sesarma cinerea*: White, 1847: 38]

White, 1847 lists specimens **b & c** from United States, Leach Collection. The only specimen located is a ♂ 14.0mm with a *Mus. Leach* label inscribed '*Sesarma cinerea* Say ...' but without a registration number or additional details.

Stenorhynchus seticornis (Herbst, 1788)

[*Leptopodia seticornis*: Leach, 1815*a*; 16, Pl. 67; White, 1847: 1]

Leach (1815*a*) cites ... *habitat in mari Carribeo* ... as the locality. White (1847) lists specimens **a-h** from the West Indies, but in the register 'Caribean Sea' is entered against **a-e** and these are probably the Leach specimens.

Extant material, registered as no. **83**, comprise: **b** ♂ 37.0mm; **c** ♂ 60.0mm; **d** ♂ 46.0mm.

Thia scutellata (Fabricius, 1793)

[*Thia polita* Leach, 1815: 312; Leach, 1815*a*: 120, fig. 103; White, 1847: 52; Leach, 1875: text to & Tab. IXA, figs 4–6]

Leach does not cite a locality or donor for his *Thia polita* in any publication. White (1847) lists specimen a from the Mediterranean, Leach collection.

A ♂ 11.0mm from this location bears a 'type' label and the registration number **50.8**. This accession entry lists Capt. Parry as the donor.

Varuna litterata (Fabricius, 1798)

[*Trichopus litteratus*: White, 1847: 43]

White (1847) lists specimen a from the Isle of France, Leach collection. This is a ♀ 40.0mm, registered as no. **349**.

Xantho incisus Leach, 1814

[*Cancer floridus* Montagu, 1808: 85, Tab. II, fig. 1; *Cancer incisus* Leach, 1814*a*: 391; *Xantho florida*: Leach, 1815: 320; Leach, 1816*a*: text to & Tab. XI; White, 1847: 16]

Montagu, 1808 cites . . . *coast of Devon* . . . as the locality and . . . *southern coast of Devon* . . . is quoted by Leach (1816*a*). White (1847) lists specimens **a-g** from the S. coast of Devon, Montagu & Leach Collections.

Extant material, registered as no. **32**, comprise: **a** ♂ juv 11.0mm; **b** ♂ 12.0mm; **c** ♂ 31.0mm; **e** ♀ 20.0mm & ♀ 25.0mm (two specimens are labelled **e**). All are considered syntypes.

Zoea clavata Leach, 1818

[*Zoea clavata* Leach, 1818: 414, fig; White, 1847: 80; Monod, 1970: 66]

White lists specimen a Atlantic Ocean (1°S Lat. 8°W Long) but Monod (1970) pointed out that this should read '1°S-8°E'

Leach's specimen (a dorippid zoea) is in alcohol and registerd as no. **690a**. Its total length (from tip of dorsal spine to tip of telson furcae) measures 18.0mm